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THE
FARMER'S MAGAZINE,
AND
MONTHLY JOURNAL
OF
THE AGRICULTURAL INTEREST.

Dedicated
TO THE
FARMERS OF THE UNITED KINGDOM.

LONDON:
PUBLISHED BY ROGERSON AND TUXFORD, 246, STRAND.

PRICE TWO SHILLINGS.

ROGERSON AND TUXFORD,] [PRINTERS, 246, STRAND.

DR. HASSALL

ON

THORLEY'S FOOD FOR CATTLE.

FROM THE "MARK LANE EXPRESS," 10th JAN., 1859.

74, Wimpole Street, Cavendish Square, 21*st December*, 1858.

Having, on more than one occasion, been requested to make an analysis of Thorley's Well-known Food for Cattle, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of Thorley's Food for Cattle. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, thus, to the composition of Thorley's Food for Cattle, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing Thorley's Food for Cattle with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others, at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more valuable, but more expensive, articles. In some of the Foods I have detected ingredients which are positively hurtful.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. Thorley's Food for Cattle is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the cleansing, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of Thorley's Food this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of Thorley's Food, they would be unable to extract all the nourishment which such articles actually contain. I consider, then, that the use of Thorley's Food is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—Thorley's Food for Cattle as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,

Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected;" &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

Sir,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum,* and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-pint) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

THE FARMER'S MAGAZINE.

JULY, 1859.

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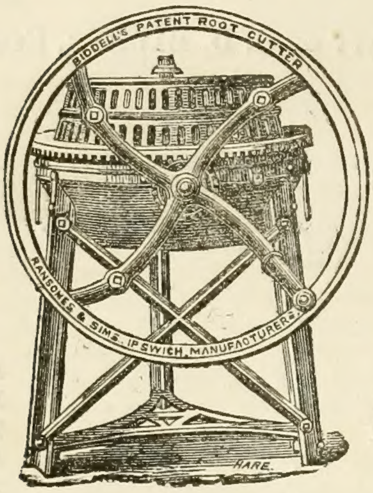
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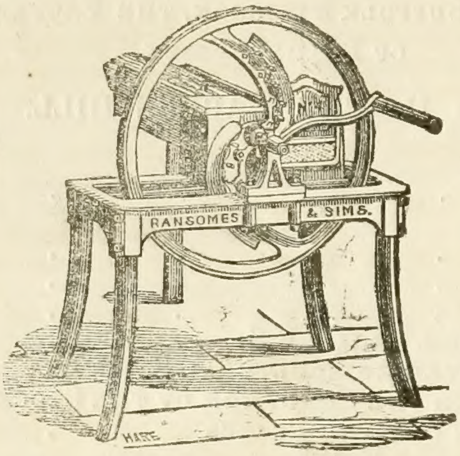

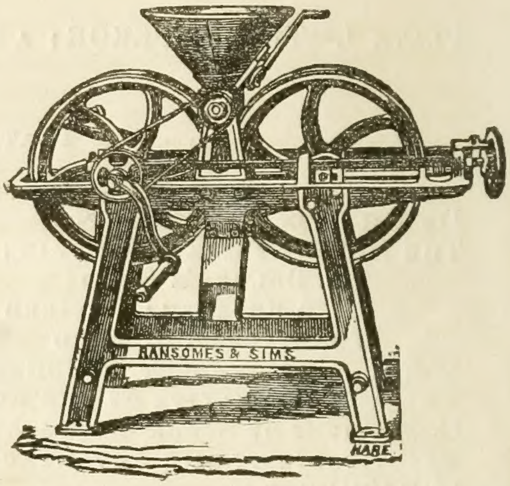

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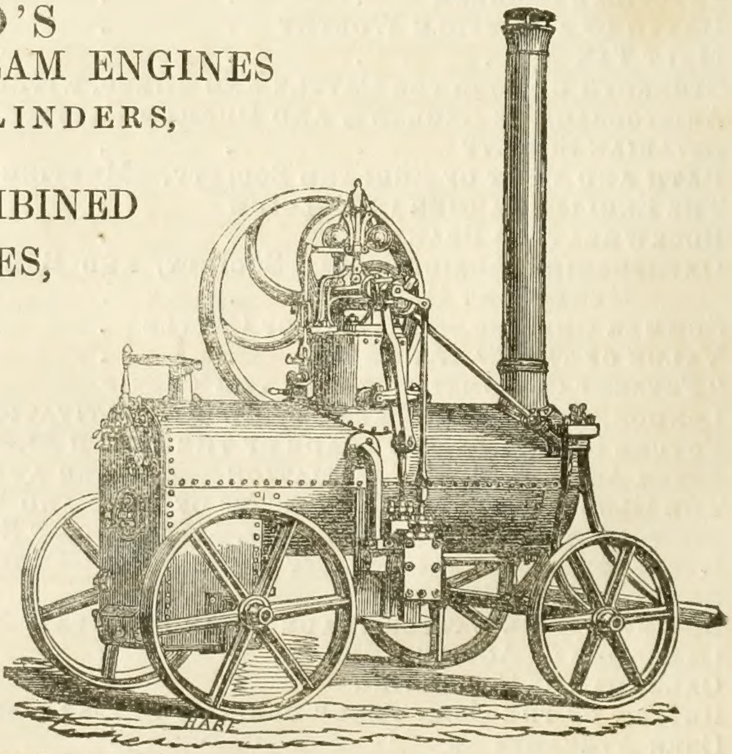

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London: Rogerson and Tuxford, "Mark Lane Express" Office, 246, Strand.

TO THE FLOCKMASTERS of the UNITED KINGDOM.—Gentlemen,—Ma of you having publicly admitted that the dipping of Flocks is indispensable to their well-doing, and that frightful losses have taken place through the use of some preparations, amounting in one dreadful instance to nearly 900 sheep, I am induced to hope that you will in future select a safe preparation, and one which has now obtained a world-wide celebrity. To the few of you who have not already used my "Sheep Dipping Powder," allow me to state, that within the last 13 years I have manufactured more of it than would suffi to dip the present aggregate number of sheep in England, Scotland, and Wales; and I can bring ample pro that the demand for it of late years, both at home and abroad, has been such as to require the constant employment of powerful machinery, turning off never less than five tons at each batch, and insuring uniformity of strength to the whole. I may further explain, that the very low price of my "Dipping Powder" and "Wheat Dressing" is sinply owing to the scale upon which they are produced. The Chemicals of which they are composed are made on my own premises, where I also constantly employ printers to exercise their art in making my Preparations known, not only in our own language, but also in that of different foreign nations. Thanking you for the past, and soliciting further favours, through my Agents, or any Chemist, I am, Gentlemen, your obedient servant, William Cooper.

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"We have delayed so long upon the contents of the preliminary chapter, that we have scarcely left ourselves space for any notice of the subject specially treated of by Dr. Pickford; but the moderate price at which the 'brochure' is sold, places it within the reach of every one interested in the matter."—Dublin Medical Press.

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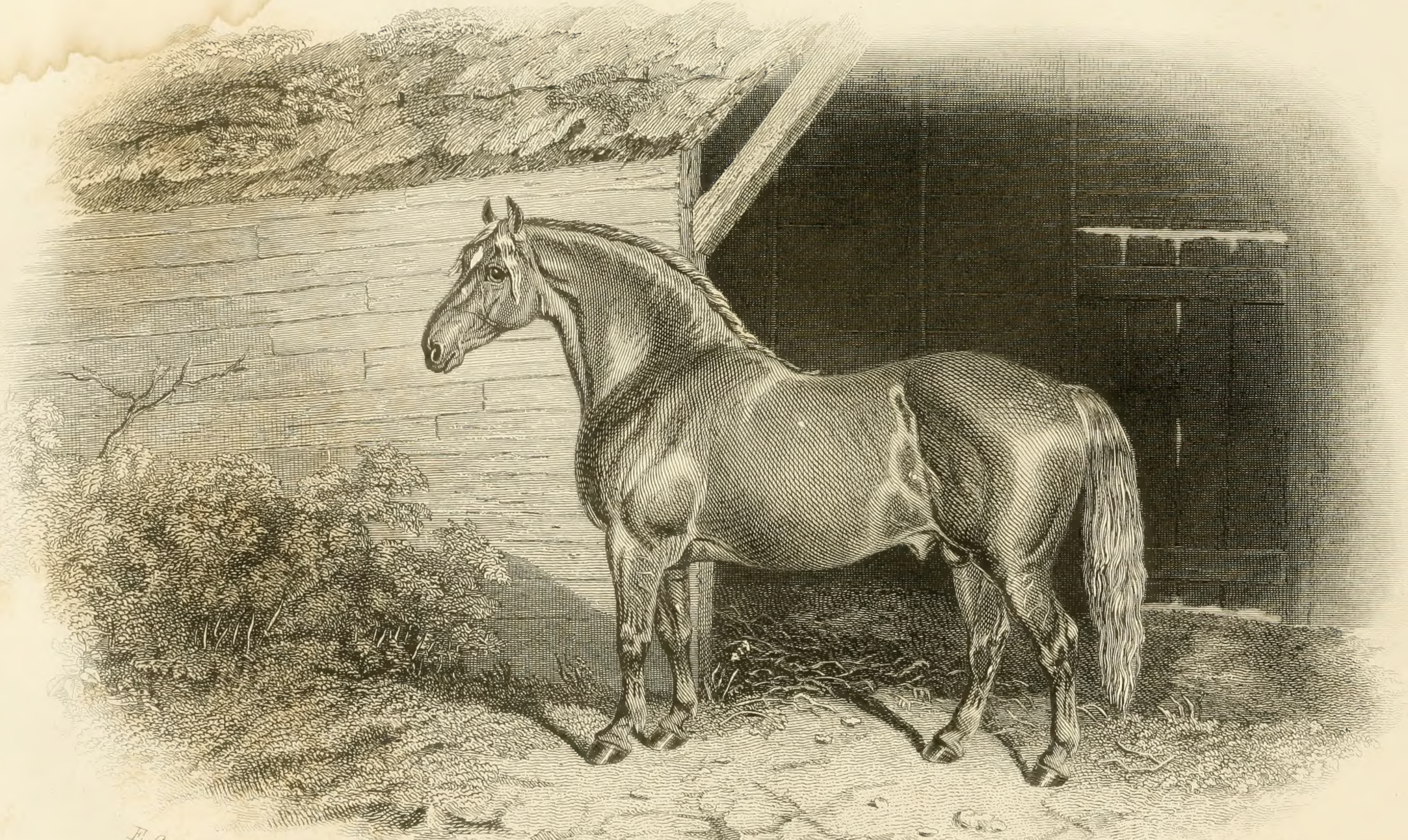

E. Corbet. E. Hacker.

The Emperor.

A Suffolk Stallion, the property of G. D. Badham, Esq^{r}. of Bulmer, Essex, for which the First Prize
of £30. was awarded at the Chester Meeting of the R. A. S. of England, July 1858.

London. Published by Rogerson & Tuxford, 246, Strand, 1859.

THE FARMER'S MAGAZINE.

JULY, 1859.

PLATE I.

THE EMPEROR; A SUFFOLK STALLION,

THE PROPERTY OF G. D. BADHAM, ESQ., OF BULMER, ESSEX.

The Emperor, or "Chester Emperor," as he is now called by way of distinction, was bred by Mr. Badham in 1854. He was got by Newcastle Captain, out of Moggy, by Mr. Catlin's first horse, of the famous "Artis" strain of blood, her dam by Lord Rivers' horse.

Newcastle Captain, one of the most justly celebrated of all the Suffolks, was bred by, and long in the possession of, Mr. N. G. Barthropp, of Cretingham. After leaving, however, his mark in his own country, he was sold to the Reverend H. Beever, of Cowbridge, Glamorganshire, who is introducing the sort into the Principality. Although now some sixteen or seventeen years old, the Captain is reputed to be as lively and as fresh as ever.

Moggy, the dam of Emperor, was long a favourite of Mr. Badham's, and the first brood mare he purchased when he commenced farming in Suffolk.

Emperor entered public life at a very early age, having been shown as a foal at the Norwich Meeting in June, 1854, when he was awarded the first prize of 4 sovereigns. He was, however, so ill at the time with influenza, that he could scarcely stand. Nevertheless, he went in the month following to the Saxmundham show of the Suffolk Society, where, looking still very wretched, he was not noticed. He afterwards visited Lincoln with no better success.

Having so lost the summer, Emperor was fed highly during the following winter, and brought quite round again. But in the July of 1855 he knocked himself about terribly when undergoing the operation of shoeing for the first time. In this battered condition he was exhibited at the Ipswich Meeting of the Suffolk Society the week following, when he was still highly commended, as well as winning a sweepstakes against a colt, which subsequently took the first prize of his class at the Royal Agricultural Society's Meeting at Chelmsford.

In 1856 Emperor was again exhibited at Norwich, but without notice; neither was he more in favour at the Stowmarket Meeting of his native county. At the "Royal" Show, however, at Chelmsford, he took the second premium of 10 sovereigns for two-year-olds, being only beaten by Mr. Sexton's colt, which Emperor had beaten the previous year for the sweepstakes at Ipswich. This was allowed to be one of the largest and best classes of young horses ever seen.

Emperor was now taken off his hitherto liberal supply of corn, and, until the March of the following year, was fed upon cut clover, hay, and straw, with half-a-bushel a day of mangel-wurzel, and about a peck and a half of bran. In the April of 1857 he began travelling in Suffolk, and about ninety mares were put to him, only four or five of which missed. He was entered this year again at Ipswich, where his real form began to show itself. Although only three years old, he took the second prize of five sovereigns, in the all-aged class of stallions, despite there being three or four "Royal" winners parading the Ring; and he then carried off the first prize of six sovereigns, as the best of his own proper order—the three-year-old colts.

Emperor after this again wintered on very moderate rations. Early in 1858 he was let to a gentleman in Surrey; but soon after the horse was sent there, the Essex Society was established, and Mr. Badham having by this returned to the county, was anxious to support the opening meeting. His friend was kind enough to take another horse in his place, and Emperor once more appeared at Chelmsford, where he took the first prize of 15 sovereigns, as the best cart stallion travelling in the county; and the All-England open premium of 25 sovereigns, as the best horse from anywhere. In the same week, he took the first prize for stallions at the Norwich Meeting; but a little later on was entirely passed over by the judges at Bury St. Edmunds. This mistake, however, was signally corrected at the Chester Meeting of the Royal Agricultural Society, where he took the first prize of 30 sovereigns in the class of agricultural stallions, against a very good entry. He was beaten for the special premium, for which former first prize winners were admitted, by the famous Shire horses Nonpareil and Matchless: but it is only fair to say that Emperor was but four years old, and the others just double his age. He has furnished considerably since then, as we can answer for, having had the pleasure of again looking him over at the Colchester Meeting of the Essex Society, where he repeated his last year's performance, taking the first prize of 15 sovereigns in the County class, and the All-England premium of 25 sovereigns. He now goes on to Ipswich for similar honours; a special prize of 30 sovereigns, for all comers, being expected to bring some very strong competition.

The Emperor is a red chesnut horse, with a few grey hairs shot here and there through his coat. He stands something over sixteen hands high. He has the most beautiful blood-like head perhaps ever seen on a horse intended for "agricultural purposes." He has a strong neck and fine crest, good oblique muscular shoulders, deep girth, and first-rate loins and quarters. His hocks and arms are also excellent; and he has a small but good foot. He stands short on the leg; and this, with his fine quarter, makes him a very lengthy-looking horse, but still with a short powerful back. Emperor is, altogether, one of the most handsome and symmetrical cart-horses ever seen, possessing in perfection those three leading "points"—great strength, fine quality, and capital action.

Emperor has this year been serving a great many mares in Suffolk; and his stock is already highly spoken of.

PLATE II.

THE WARREN HILL.

The subject of our plate is becoming rather a momentous question just now. The gamekeeper and his perquisites have had to stand up against a good deal of hard hitting, and the rabbits, most probably, will have to endure even more yet. Indeed, every man's hand is against them; and as the law goes far to countenance this, we may expect to see them gradually thinned out. A plague of rabbits in a well cultivated district is, no doubt, a terrible nuisance, while there is really little in the way of sport to be argued for its countenance. So long as there are enough to feed the house and the foxes, the keepers had better be kept to their own proper business of rearing pheasants, and not to making a market at their neighbours' expense. In a range of rough country, however, like the Warren Hill, a morning's rabbit shooting and ferreting is a very agreeable occupation, and our illustration, accordingly, quite "in order."

THE HERDS OF GREAT BRITAIN.

Chapter VIII.

MR. BOLDEN'S HERD.

Lancaster, both to the historic and the Shorthorn mind, is essentially a land of Dukes. The former loves to contemplate that bold eminence, crowned by the Lungess Tower and the grey bastions of that castle which Roger de Poitou built, and where John o' Gaunt oved to dwell in the perilous strife of the Roses; and the latter thinks, in a less martial mood, of the two mighty Grand Dukes, which dwelt beneath its shade, and then crossed the Atlantic, each with a thousand guineas on his head, to join their fair Ducie and Towneley mates on the banks of the Hudson river. These modern Dukes of Lancaster held their state either at Springfield Hall, which has forty acres of pasture land round it, on the southern outskirts of the town, or at the Red Bank Farm which is four miles to the north, on the desolate beach of Morecambe Bay. The two places form the summer and winter residence of Mr. Bolden's herd, which numbers about fifty head; and as we visited it in the latter season, we found at least forty at the farm, whither they had duly migrated, to consume the hay, straw, and root-crops on the spot where they are grown. Natty as the arrangements are throughout, the coolness and comfort of the shippon at Springfield chiefly caught our eye. The whole of it, with the exception of the yard of Third Grand Duke, is under one roof, with the calf boxes at each end; and the cows stand *vis à vis*, with a gangway, from which they are fed, of six feet wide between them. Wood and glass find no place here. Open iron-work separates the gangway and the stalls; the partitions between the latter are large slabs of blue slate; and the ventilation comes not only from the roof, but through the minutely perforated zinc windows, which do not admit of a draught sufficient to blow out a candle.

Mr. Bolden inherited his taste for Shorthorns from his father, who, along with Mr. John Colling of Whitehouse, and Mr. Lax of Ravensworth, caught his inspiration from the Brothers Colling, and died in 1855, at Hyning, near Lancaster. No man was fuller of Shorthorn lore, intermixed with the quaint sayings and the doings of the old Durham and Yorkshire worthies. He kept a herd for many years, always sticking to the old-fashioned roomy heavy-fleshed cows; and hired Leonidas, Leander, and Royal Buck, and other bulls, from the Booths, in days when a man who gave only sixty guineas for a season was considered quite an intrepid character, and when Warlaby females could be had for money.

Four of these now "Veiled Prophetesses," Fame, Rachel, Bridget, and Vivacity, were purchased by Mr. Bolden soon after he commenced breeding, in 1849; and along with cows of the Duchess, Cambridge Rose, and Waterloo tribes, from Kirkleavington; the Cherry tribe from Col. Cradock, and the descendants of No. 25 at the Chilton sale, gradually formed the present beautiful herd, all of which, with the exception of Waterloo 12th and 13th, were bred by their owner. No herd has made greater strides towards perfection, and it is a remarkably encouraging instance to prove that if a man begins with good sorts, and gives his judgment full scope in selecting crosses, he may even in ten years place himself in the front rank. The whole herd is in breeding condition, and this fertility seems due both to his preferring a state of nature, to "the red, white, and blue" ribbons of the show-yard, and the free use of Duchess bulls.

The late Mr. Bates, when he published the portrait of the Duke of Northumberland in 1839, did not fail to improve the opportunity by giving an abstract from the title-deeds of this tribe. Through that document we trace them back to 1784, when Charles Collings purchased from the agent of the Duke of Northumberland that original cow, whose ancestors had for two centuries peacefully cropped the Stanwick herbage, or been driven off by the mailed mosstrooper in many a border foray. Hence it was that he rechristened the cow *Duchess* "after that family, because they are justly entitled to be held in commemoration for having possessed a *tribe* of cattle, which Mr. Charles Colling assured me *was the best he ever had or ever saw*, and that he was never able to improve upon *her*, although put to his best bulls." There is quite a Hebrew grandeur in the pastoral simplicity of the old Kirkleavington enthusiast, as he spurns the nine hundred armorial ensigns of the blood royal of England and the chivalry of France, commingled in the Percy banner; and calmly paints in the old red and white cow grazing, instead of the lion rampant, on their proud baronial shield.

Still, write as he might about their glories, his deep partiality for them had nearly been their ruin, and although they had been in his hands for five-and-forty years, they were reduced to a very low ebb when he died. Duchess 64th, the dam of Second Grand Duke, he did not live to see, and she was the youngest of the eight which stood up before Mr. Strafford in the memorable sale ring, close by the little church-yard, where, when we last heard, not even a stone is sacred to its memory. Her dam, Duchess 55th, has been a very Barbelle in the herd world, as three of her produce were sold for 2,300 guineas, and she was both the dam and the grandam of a thousand-guinea bull. Mr. Bolden bought the first of the Kirkleavington eight in Duchess 51st, dam of the Fourth Duke of York, for whom Lord Ducie gave 200 guineas at the same sale, and sold after three years' use to the Americans for 500 guineas. The saltwater was fatal to him, as he broke his neck in a storm; but the change from the banks of the stately Tees to "the gently curving lines of creamy spray," that wash the Red Bank Farm, redeemed his dam from the curse of barrenness, which had sunk her to 60 gs.

She bred three heifer-calves, the first of which, by Leonidas, died in the birth, and the others were ushered into the yard at Springfield for us, in the shape of two roan cows, Grand Duchess and Grand Duchess 2nd, by Grand Duke. A noble pair they were, and as Earl Ducie used to say of Duchess 55th, and one or two other of his favourites, "You might stop and smoke a cigar over them." The eldest is a beautiful specimen of a "Bates toucher," silky hair on a stout elastic hide, with that peculiarly dainty cellular tissue between the hide and flesh. The head, too, has all the most favourite characteristics of the tribe, slightly dished in the forehead, with a prominent nostril, and a great general sweetness of expression. And what is still better, they are well down in the twist, and are great milkers, combined with heavy flesh—qualities which we too rarely meet with now-a-days. Her first bull-calf was accidentally killed; but there are two heifers from her, one of them Grand Duchess 4th, a neat roan of twenty months, in calf to Grand Duke 3rd, and a red Grand Duchess 7th, of about five months old. Grand Duchess 2nd beara s strong family likeness to her sister, but she has more substance and gaiety of carriage; and she held up her head, as if right conscious of her lineage. She is little more than five years old, but she has had three heifer calves, Grand Duchess 3rd, 5th, 8th, and Third Grand Duke. The former of these two has a very good roan heifer by Prince Imperial, with the same gentleness of eye and mellowness of touch that pervade the whole tribe, which already numbers eight females and one male in Mr. Bolden's hands.

Three of the heifers are red with a few patches of white, and it is curious to notice in their marks the exact resemblance to that original Duchess, from whom thrice 183 gs. would hardly have separated Mr. Bates at the Ketton sale. Coates's Herd Book has preserved to us her picture, as she feeds on the Tyneside, with Halton Castle in the distance. The white patch on the flanks and crop, the star on the forehead, and the gay little beauty-spot just above the muzzle, rae all there; and with the exception of Duchess 3rd, who is enrolled in the Sibylline leaves of Shorthorn fate as "a light grey," there was no break in the "red and white succession till Duchess 19th was crossed with Belvidere of the "White Bull," or Princess family, and two roan heifers were the produce. A double cross of Belvidere brought the colour to white for the first time in Duchess 50th from Duchess 38th, by the Duke of Northumberland, from the first roan, Duchess 33rd.

Cambridge Rose 5th, by Second Cleveland Lad, was five years old at the Kirkleavington sale, when Mr. Bolden senior bought her, and with the exception of Cambridge Rose 6th, who is still kept as a Shorthorn memento at Cobham, and Cambridge Rose 7th, who was purchased by Mr. Downes, and from him by Mr. Bolden for 70 gs., the next autumn, there were then no more descendants in the land of the celebrated Hustler's Red Rose. Cobham proved the value of this blood by the biddings for the gay old cow, and her Marmaduke calf, Moss Rose, for whom three hundred guineas has twice since been refused. In Mr. Combe's hands, she bred four bulls and three heifers; and there is every hope that the iron mineral waters, which Belle has met with in her new home, will make her blossom like a rose once more. The First and Second Dukes of Cambridge alone represent Cambridge Rose 7th, and as she persisted in breeding nothing but bulls, the tribe was lost to Springfield at her death.

When Mr. Bolden had got home the old Duchess 51st, and compared her with some other very good Shorthorns on his farm, he became so convinced of the goodness of the Bates blood, that he determined to make his stand on it. His first move was to purchase Grand Duke (10284), by Second Cleveland Lad from Duchess 55th, for 205 gs., the same price that Mr. Hay of Shethin, Aberdeenshire, gave for him at Kirkleavington. At the time he bought him, he and his father had several cows almost useless, after having been served repeatedly by idle bulls; but with him and successive Duchess bulls, the fertility (which Mr. Bates attributed, in the case of the Duchesses, to the cross with Belvedere) gradually returned. The same was observable in other herds where Duchess bulls were introduced, and Earl Ducie did not conceal his opinion that his was saved by the use of them. Grand Duke was four years old when he came, and he departed for America two years after; and whether in addition to the Dukes of Cambridge we look at May Duke and Grand Turk (the sire of Great Mogul), from Booth cows; and two Cherry Dukes from the Cherry tribe, all of which have been sold and resold at high figures, Mr. Bolden stands as a bull-breeder second to none.

Grand Duke 2nd, by fourth Duke of York, from Duchess 64th, who was calved at Mr. Bolden's, had rather more white on him than Grand Duke, and was only two years old when he followed him, in November 1855, to the New World. He had not quite the bold look of Grand Duke, and although it would seem to be the perfection of a Shorthorn to read good nature in his face, the Americans always thought that he looked rather too placid. Unlike the gentleman who described himself as having been absolutely unable to close his eyes from emotion, the live-long night after his unexpected "Vision of Fair Women," in the shape of Queen Mab, Nectarine Blossom, and Queen of the May, a recent visitor to Thorndale does not seem to have been the least stirred up by treading such classic soil, or much struck with anything beyond Grand Turk weighing 2,800lbs. He tells us, however, how he found him in company with Second Grand Duke and Neptune of the Booth blood; and how he calculates that Duchess 64th and 66th, Oxford 5th, 6th, and 13th, and Bloom, Frederica, Lalla Rookh, Buttercup 2nd, Miss Butterfly, and Pearlette would be alongside them. Such an American Congress would be worth all the sea-sickness and all the expense to see. Duchess 64th (600 gs.), who was generally considered the best of the eight Duchesses that were sold at Tortworth, died a short time since, along with Duchess 59th (350 gs.); and Duchess 66th (700 gs.), that "brand plucked from the fire" (as Earl Ducie termed her, when the news was carried to his dressing-room one morning that a calf had at last been found in Duchess 55th) was among the fifty head whom Mr. Thorne purchased after poor Mr. Becar's death for £7,000. She has bred remarkably well, and had a calf this year to Duke of Glos'ter, who has been resold, though not for 650 gs. Mr. Alexander's herd, who first opened the American market by his purchases from Col. Towneley, has his pasture lands in Kentucky, eight hundred miles from Thorndale. Mr. Sheldon also began last year, with a new herd at Geneva in the State of New York, and has bought Duchess 71st, and a daughter of Duchess 64th, as well as some Oxfords; while Babraham has furnished him with a bull.

Before leaving Springfield, we had a look at Third Grand Duke by the Second Duke of Bolton (who was from Florence, a daughter of Booth's Fame), and a striking example of the combination of the two royal lines. Second Duke of Bolton got so heavy at four years old, when he stood nearly 120 stone on the machine, that he was sold to the butcher, and his son took his place. He is a particularly handsome bull, well filled up over the steaks, and as even as a horse throughout. The great thickness through the heart is another of his points, and to this we must add very well laid shoulders. With all its gentleness, there is a particular dignity about his forehand, which so many modern bulls of high breeding renown have lost, and a touch must be dead or saucy indeed that does not own him mellow. His fee is fifteen guineas, and the Duke of Devonshire's Oxford 15th and her daughter are among his fair visitors, while Leila is duly expected.

When his box was closed, we soon changed the venue, with a bitter north-easter in our face, to the farm at Red Bank. It is only twelve years since Mr. Bolden began farming here, and six or seven stacks with a dozen head of cattle then formed the principal "rolling stock." Time, that gentle innovator, has worked wonders for the soil. The traveller from cannie Aberdeen or merrie Carlisle feels sure that there is still corn in Egypt, as he glances to his right at a platoon of forty stacks thick, and the century of acres yield hay, turnips, and mangolds as well, to supply the whole of the present herd. All the winds that blow seem to form a coalition on that promontory; but still the Shorthorn thrives in all its native hardihood, and the calf-houses never lack their goodly little company. The mist jealously shrouded Langdale Pike, and the other Lake Hills; but still, Wharton Crag made up a bold grey back-ground, when Prince Imperial came on to parade, by the side of the bay, where the Americans first saw Grand Duke. As he was led along, we thought how an imaginative mythological spirit would have fallen back on the belief of his school-boy days, and pictured to himself, in that massive roan son of Bride Cake, another moody Jupiter waiting for Europa by the lone sea-shore.

He is by Second Grand Duke; and although it so often happens that the first cross is too strong, he has well united the Booth substance and the Bates' touch. Mr. Bolden is putting him on Bates' cows again, and, to judge from the calves, with good success. His grandam Bridget was, along with Rachel and Vivacity, the last cows Mr. Richard Booth ever sold. Bridget came in calf to Crown Prince of Bridecake; and Britannia (who was sold as a calf to Mr. Ambler) and Blissful, both of them by Grand Duke, were her other calves after leaving Warlaby. Bridecake is dead; but her daughter, the White Bride by 2nd Duke of Bolton, an 18 months' heifer, was sold with another out of Blissful, the very day we were at Springfield, for 600 gs.; and Blissful was there still with a roan calf, Bashful by Prince Imperial. Rachel—who, like her two companions, was believed to be barren—had only two calves: to wit, Grand Turk by Grand Duke, who departed from Springfield as a calf, and was resold at Mr. Ambler's sale for 300 guineas; and Rachel 2nd by Duke of Bolton, who went to America at eighteen months for 350 guineas. Vivacity also produced Mayduke, to Grand Duke, under the influence of the salt-water cure; but she bled to death in calving, and three bottles of port wine were poured down her in vain.

We found the footsteps of Fame, the ten-year-old senior of these whilom Warlaby emigrants, in the Fenella family. The old cow, who was own sister to Faith, the dam of Hope and grandam of Charity, was purchased by Mr. Bolden from Mr. Henry Watson, of Walkeringham, with her calf Fay by at her foot. She only bred bull calves at Springfield; but Fay had two heifer calves to Grand Duke, and the first was christened Fenella. She went to America as a yearling, with Grisi by the same bull; and they proved the pioneers for him, as Mr. Thorne chanced to see the pair when they landed at New York, on their way to Mr. Alexander's, and made up his mind at a glance that the sire of such daughters must be got at any price. The speculation was not fortunate in his case, as his over-activity was his ruin, and he proved to be hopelessly injured after getting seven calves. Fenella 2nd is still here in the shape of a fine roomy cow; and Fenella III., by Prince Imperial, is full of promise for her twelve months.

It was to Mussulman out of Col. Cradock's old Cherry that Mr. Booth went for the celebrated cross for Bracelet, which produced Buckingham; and the bull himself was purchased for 150 guineas by Mr. Bolden's brother, and taken to Australia. The price was high for the period; but he was a fine-fleshed animal, with great muscular development, and one cross wrought wonders with the native cattle. The original Cherry was purchased by Mr. Unthank, of Netherscales, at the close of 1842 for £26. Col. Cradock fancied that she had ceased to breed, and she was tied up to fat for the butcher, when Mr. Unthank determined to chance it. The transition from Yorkshire to "Cannie Cumberland," brought about a new state of things, and in 1844-5, she calved Wonder (7730), and Queen of Trumps to the renowned Captain Shaftoe. These were her last; and she was slaughtered in 1847, when she had reached the ripe age of nineteen. Mr. Bolden took a liking to the sort, and accordingly purchased a Cherry cow at Mr. Lax's sale. She was small, from so much breeding in; but the cross with Grand Duke restored the fine Cherry character, combined with capital quality and gaiety of appearance in Cherry Duchess, who is an especially neat cow, with heavy flesh, and the most beautiful racer-like bone below the knee. We saw her under peculiarly favourable circumstances, as one of the old sort, with thin shoulders and staring hips, was turned out at that moment from an adjacent shed, where she acts at once as nurse and "frightful example." Her son, Second Cherry Duke, was purchased last year by Mr. Shepherd for 205 gs. (the same price his grandfather gave and received for Grand Duke), and got the first Highland Society prize for two-year-old bulls.

Next to her we noticed Waterloo 17th and 18th, who were brought out together, both of them by Second Grand Duke, and full of Duchess character; but perhaps we were most struck with the hind quarters of the latter. This was a tribe on which Mr. Bates set great store, and he would never say from whom he obtained them. He thus spoke of them in a letter, dated 1841, which he addressed to Mr. Bolden's brother in Australia, to whom he had sold some cattle. After advising him to put them to a Waterloo bull, which he had recently shipped, he proceeds: "The dam and grandam of the above were both by Waterloo bulls, and the blood was good for many generations previously; though I only asked as to the dam, when I bought the first Waterloo cow, ten years ago." There were three more Cherries, and several other promising young Waterloo heifers, but a Waterloo Meeting on the plains of Altcar was looming in the distance for us, and we could not dwell.

One more tribe remained, going back to No. 25 at the Chilton sale, whose portrait, along with Clarion, was given in the Cattle volume of the Diffusion of Useful Knowledge Society, to show what a shorthorn should be. Among them were the neat roomy Garcia, a twin sister to Grisi—and two good heifers from her; while Mario and Lablache—who were sold, one at 70 guineas and the other at 100 guineas at six months, keep up the musical honours of the line elsewhere.

CHAPTER IX.

LORD FEVERSHAM'S HERD.

The sale of the Aldborough herd had become a thing of the past; its three Roses had departed to bloom in Carnarvonshire and Chippenham Park, leaving their little kinsman, the Earl of Aberdeen, with the King Arthur calf, as the germs of a herd to come; but ere we sped from Darlington to pay suit and service to Sir James and his fair Roses of the East Lothian, we partly anticipated our summer visit to Yorkshire, by harking back some thirty miles, to have a look at the Fifth Duke of Oxford, and the herd of which he is the far-famed centre, at Duncombe Park. The train was full of Shorthorn men, homeward bound it is true, but each with some mission or other on the road. Some got out at Northallerton, to have a "quiet morning at Warlaby;" others dropped on to Mr. Anthony Maynard, at Harlsey; another couple wanted to see the Sixth Duke of Oxford, and the bevy of Duchesses at Captain Gunter's; and hence, when we changed carriages at Thirsk for the Malton line, and heard "*Helmsley Station!*" shouted at last, in the unshackled Doric of the district, we had only one companion left. The scenery of the country is a striking combination of wildness and fertility. The Trafalgar Column, which the late lord reared to the hero of immortal memory, is the portal to the park, which extends along a richly-wooded plateau; while at your feet there seems to be a vast plain in every stage of the four-crop rotation for miles, and then fading away in the far distance into some heather forelands, which almost shut out the view of the German Ocean. This Kirby Moor was at once the hunting ground and the death scene of the Duke of Buckingham, in days when the rafters of Helmsley Castle rang again with his revels, after he had retired from the court and cabinet of Charles the Second; and its fame has not died out. Few foxes would care to be "at home" in Grange Whin, or Waterloo Plantation, or among the laurels of the Terrace Walk, close up to the house, if they could read when John Parker and the Sinnington intended to call; and although the hounds are collected the night before, and drop off, one by one, to their farm settlements, as the huntsman rides home, they can account for their twenty brace in a season.

The old castle lies just within the Duncombe Park gates, in the midst of the little primitive market town of Helmsley; but the wild music of the cannon which was once levelled against it for six weeks by the Ironsides, under Fairfax, is exchanged in these happier times for the caw of the rook colony, which sail solemnly in circles round its ivy-shrouded ramparts. The only room left in it is used on rent days, and few farmers on all that vast property, which stretches away fifteen miles to Cleveland bank, and seventeen to the East Moors, pass through the lodge at those *levées*, whether they love shorthorns or whether they do not, without exchanging a word with "Old Anna." It is many years since she resigned office as head cow-woman, and her Herd Book memory seems to have stopped short at that point. She has caught no reflected glory from the Fifth Duke of Oxford and Symphony, and professes, we grieve to say, quite a fashionable unconsciousness of their very existence. Her heart was irretrievably lost some thirty years ago to a "Young Grazier," and her love has known no change. As for Bates and Booth, she "might have heard their names;" but Mr. Collings and Mr. Wiley, they were the men for her. Grazier would be by one of Mr. Wiley's bulls, and he was always buying from Mr. Collings. No wonder there was such a sympathetic chord! What were modern breeders, and their Bates grandeur, and Booth substance, and Fawsley neatness, to her? Give her the cows of her buxom womanhood—"*big roomy yans.*" Then, warming with her subject, after this general sentiment, she ticked her ancient favourites off on her fingers. "*There would be Emperor,*" she said, "*and Baron, and Baroness, all oot of one coo—Wildair;* THEM WERE *just the shorthorns! I could tell my lord, when the gentlemen came, every one of their yages for fifteen years back, and all aboot them.*" When we saw that fond and yet triumphant leer, we did not wonder (though in stature she is not the woman to wrestle with a bull) at the recital of that mysterious fascination on which she next dwelt, when the mention of Young Grazier touched another and a still tenderer key. Away she went at score, leaving our pencil and notebook staggering hopelessly behind. "*Aye! Young Grazier—you've got that right enough;—he was a savage one, but I could just handle him as I liked. None could lead him out to please my lord, like Old Anna.*" Waxing bolder, we then cross-examined her as to their parting scene. "*Took him away when he was sold? Now who's been telling you that? Of course I did. No one else dar come nigh him. I walked seven miles on end with him, that I did. I had clogs on in those walks, and I could use 'em quick too.*" To a last inquiry as to whether she had not extended her walks in another direction, and driven True Blue's dam to the butcher at Stillington, she gave us to understand that she had a slight weakness for that "coo" as well, and was determined to "*see the far end of her.*" And on we strolled from this old marvel to see the modern herd.

We had received a parting assurance that "*they can give a good pedigree of me at the farm up yonder—a five-and-twenty years yan,*" which would place the commencement of her premiership back to about 1818. Before that date, the late Lord Feversham, then Mr. Charles Duncombe, had nothing but Devons, and found them too delicate for the climate. The Barmpton sale was the beginning of his shorthorn herd, and Wildair, by George (176gs.), and Young Moss Rose, by Wellington (190gs.), both of them above five years old, were his purchases. At Mr. Mason's sale, eleven years afterwards, he gave 94gs. and 69gs. for two Satellite heifers; Major Domo was an accession from the Castle Howard herd; and he also dipped into the Booth blood by buying a bull from Major Bower, and hiring Albion from Warlaby. The present Lord Feversham has continued the herd quite as much for his tenants as himself, and with the same cosmopolitan spirit; not sticking to any particular lines of blood, but purchasing at sales, as often in person as through his agent, anything which from its symmetry and pedigree seems most likely to prove valuable. At present it numbers about fifty head (besides twelve or thirteen at his Lordship's seat at Oakhill, near Barnet), and some of the bull calves, which have come in a 6 to 1 proportion during the last few months, are sold to the tenants soon after they are dropped. To judge from his purchases at Kirklevington and Tortworth, his Lordship's inclination has rather been for the Bates blood, whose bulls have done him good service. He gave 300 gs. for First Cleveland Lad; and when he proved unable to serve, Second Cleveland Lad (the sire of his Perfume and Belinda) was lent, and the two were at Duncombe Park together. This Cleveland Lad cross did much towards restoring the milking properties of the herd; and two cows of the breed gave as much as forty quarts of milk a day between them. Belmont and Jenny Lind were by the Earl of Beverley, whom his lordship hired from Kirklevington for a year; and the latter, a still well-remembered shorthorn specimen, took the first prize at Smithfield in 1850, when the cow classes were open to all breeds; while, in the following year, Puella, by First Cleveland Lad, from Primula, by Grazier, earned the same honour. The Smithfield Show was also the early destination of Wild Eyes 29th, who was among his Lordship's four purchases at Kirklevington, as she never had a live calf herself, and had nearly set all the other cows wrong. Hence they deemed it best to feed her, and won the silver medal in the extra stock class. Ebor, by Third Duke of York (10,166), got two or three things, and then died; Oxford 12th died after her first calf, and in fact, the only one which bred was Duchess 61st, the dam of Desdemona, and the cream-coloured Highland Duke, the sire of May Duke. At Tortworth, his lordship bought China, a two-year-old half-sister to Oxford 12th, for 90 gs., and came out with a vigour worthy of the occasion for Fifth Duke of Oxford, by Duke of Glo'ster (11382), dam Oxford 11th, who was little more than five months. Never was 300 gs. better laid out; and the 120 gs. for his half-brother Glo'ster, who was a month younger, also came back with usury. In 1855, Glos'ter was second to Booth's Windsor at the Royal and the Yorkshire Society's Shows; in 1856-57 he was the prize bull at Paris and York; and in the following year he was sold for 200 gs. to Australia, leaving no mean legacy to Duncombe Park in Perambulator and Prince Imperial. His lordship was also a buyer of the highest-priced lot at Mr. Kirkham's sale; and Vauxhall, by Duke of Cambridge (7987), 36 guineas, and Mint, by Captain Shafto (6833), for whom Mr. Hopper Mason fought him out, bidding for bidding, up to 160 guineas, are still in the herd; but Lavender died from a remarkable accumulation of warts, all underneath her, after having a fine calf, Lady Mayoress, to the Fifth Duke of Oxford. Oakleaf, by Duke of Glo'ster, 81 guineas, and Fanciful, 51 gs., from Mr. Tanqueray's; Blithesome, by King Arthur (13110), 70 gs., and Symphony, by Jock of Hazeldean (13085), 96 gs., from Mr. Marjoribanks; and Claribell, by The Earl of Dublin (10178), 95 gs., from Mr. Grenfell's, have been his lordship's principal purchases of late years. Those at a less figure have generally gone to Oak Hill, where Saucebox and Dairy, from Cobham, now roam.

We had learnt this much of the antecedents of the herd, when we reached the summer temple at the top of the avenue, and then leaving it on the left, turned into the first farm-stead, through a handsome troop of those Polish fowls, which seem to have fled the earth before the allied forces of Spanish and Dorkings. The buildings here, which are sufficient to accommodate eighteen cows and several calves, are of a neat but simple description; the gangways were strewn with sawdust, and the beds were of fern, a supply of which stood piled in a large stack hard by. Fanchette, a purchase at Mr. Ackroyd's sale at Farnley, was the first to show. She has a very nice head, and looks like a milker, and of her breeding powers we had good proof in her white and rare-coated bull calf by Prince Imperial, whom, from his size, we felt disposed to ante-date by nearly three weeks. [Bloomer, by Ben Nevis (9960), from Blue Bell by First Cleveland Lad, was bred by his lordship, and is a nice clever cow, with beautiful quality, and especially neat in her bosom and fore-quarters and head, which wears the gay waxy horn of Kirklevington. Mint, a compact, but not very large cow, with a good back and loin, and well-sprung rib, has dropped the prefix to her name, which she bore at Mr. Kirkham's, but without reason, as far as her success is concerned. One of her daughters, Millicent, by Highland Duke, was sold to the Emperor of the French last year for 100 gs.; and Medora by Glo'ster, and Melody by the Fifth Duke of Oxford, have all proved happy crosses for her renowned Captain Shafto blood. Sunrise, by Glo'ster, and her dam Sunflower, appeared together, but the daughter is an improvement on the mother. They go back through Sunshine by Second Cleveland Lad to Sunbeam by Grazier, who slipped into a drain and died. Sunflower has at present a bull calf Stackallan, by Fifth Duke of Oxford, who forthwith appeared from the opposite side of the yard to meet her, and is, with the exception of a little plainness behind, a very clever calf. And so, through Laurel Leaf, by Bumper, a very neat cow, with a Splendour heifer calf; Buttercup, by Belmont, not a big cow, and with a good deal of the old fashion about her; and Blithesome, who is small, but has all the Buckingham quality, we reached Charm. This cow is more of the old Wild Eyes sort, and very nice in the horn, but hardly equal to her red heifer calf Charmer, by the Fifth Duke of Oxford. She is by Leicester (14787), who came originally from Lord Berners, in exchange for another calf, and her calf Charming Lad won in a tenant's hands at Kirby Moorside last year. Claribell was a very stylish cow, with beautiful fore-quarters, and shows great breeding. Unluckily, her bull calf died, and she has never bred since. Cheveril, by Prince Imperial, does both him and her dam Cheerful every credit, and a nicer and more mossy coat we have seldom handled. There was also another of the Fifth Duke of Oxford heifers in the shape of a twin from Belinda, who is since dead—quite a Bates both in colour and head, and with ears and nostril standing out in true Kirkleavington fashion. Choice, by Highland Duke (13025), from China, struck us as a particularly even-made, hearty cow, with a nice back and ribs, but a trifle plain in her hind-quarters. Bloomer was the plum of the lot, and she never looked better than when we watched her and her companions, including three or four Alderneys, which are kept to improve the cream, strolling quietly into the park after parade, beneath the overhanging oaks and beeches of Blackdale Howl; Claribell, with her gay neck and head, leading, and the old cow bringing up the rear.

And so we strolled across the wide and beautifully-belted park in search of the others, and took a preliminary peep down the valley of the Rye, which bounds it on the west. The broken ground on the opposite side of the river, which terminates in one point in the dark green of the Waterloo plantation, which was planted as a wood of victory by the late lord, is singularly rugged and beautiful; and a distant peep of the hills of Hambleton, with all their Kingston and Knight of St. George recollections, may atone, to "a stable mind," for getting none of the ruins of Rivaulx Abbey, which still linger, in all the majesty of calm decay, a little further down the valley. The Griff Farm, that scene of Old Anna's glories, to which we were bound, lies about a quarter of a mile from the park, along a field route, lined, at intervals, with those dark-green holly trees peculiar to this Riding, and which catch a stranger's eye at once from their enormous size. Ear, however, came into play before eye, when we at last neared the box of the Fifth Duke of Oxford, and were saluted with a roar, quite worthy, in its depth and tone, of a Libyan King of Beasts, and he looked the character to the life, with that shaggy "lion-like old head" and mane, as he was at last led forth, snorting, in blinkers. The fine length, beautiful touch, and rare union of hip, loin, and rump take the eye as much as ever; but although he is reduced some twenty stone since he wore the Chester and Northallerton prize ribbons, his day of usefulness is, we have reason to fear, like his temper, quite gone. Still, he seems active, and walks two hours a day; but the change from training to ordinary life, although he was let down quite gradually, ruined his mettle, and he has not served a cow since the autumn. The £5 prize at the Cleveland Show was his maiden one at two years old. In 1856 came the bronze medal, which is equivalent to an H. C. at Paris; and at Rotherham that year he only bowed to Grand Turk. His son Skyrocket, from Swift, who faces Prince Imperial in the next place, did not serve till he was banished for penance to some poor land at Cockayne, adjoining the moors; and several roan heifer calves have recently been dropped to him by cows belonging to the tenants in Bransdale. He is of a beautiful colour, with long quarters, and a stylish head, but with not quite the quality of his sire, or the massiveness of Prince Imperial, who is a year his senior, and like him a prize winner at the shows of the district. The latter, who was calved on the May morning of 1856, is by Glo'ster, from Perfume by Second Cleveland Lad, and through her, in the good old line, to Grazier. He is a splendid roan of great length, with especially fine hind quarters, and well let down in the twist, in short an awkward July customer in the "Lammas Meadows." In neatness he was perhaps excelled by his brother Perambulator, who is very remarkable in that respect, and was highly commended as a calf at Northallerton. Splendour by Glo'ster formed another of the congress, and so did Oxonian by Fifth Duke of Oxford, who is level and clever, but of rather a bad colour.

As we left the bull boxes, old Vauxhall, who is upwards of eleven years old and very lame, headed a procession of her Duncombe Park produce (in which Victor Emanuel, who was sold to the Duke of Montrose, alone was wanting) on to the little green behind the yard. She was originally bought in calf with Varna by Usurer, who followed her; and then came her Victorine and Valetta, both of them by Fifth Duke of Oxford. Victorine is very level and beautiful, but was never shown; while Valetta, who was highly commended at Northallerton, has hardly quite her style, and seems to have grown a little plainer since she was in public. Symphony, on the contrary, has improved most wonderfully since Mr. Wetherell's hammer fell at Bushy Grove. After being placed second to Queen of the Isles as a calf, she won high commendations both at Chester and Northallerton, in a year quite unparalleled for strength. She is wonderfully thick and elegant throughout, with a deep bosom, and peculiarly catching forehead; and her offal is so fine, that some judges have positively taken exception to her on that score. Unluckily, she will be springing with calf to Mayduke the week before Warwick, and hence the class will be shorn of one of its most promising features. Mary, Chivalry, Alma, a capital toucher, but not very handsome, and Piccolomini—all by Fifth Duke of Oxford, then joined in the rank and file; but although the last named is a very square, true-made heifer, the eye gets dainty after a glimpse of Symphony; and for this reason perhaps Olivia by May Duke, and Medora by Glo'ster, whose colour is a good deal against her, received less notice than was their due. There was Songstress also from the Grazier blood, of a very grand colour and style, and her twin sister Stately, whose somewhat upright horns were her only take-off. Portia, a long low thick style of cow, with a rare back and good character, who was commended at Lincoln, and won at Kirby Moorside, was the last of the cows save one, and that was Bride, a white cow on a large scale, of the Castle Howard breed, who is in active training for the Christmas Fat Shows. Three were in the calf houses; to wit, Chorus by Splendour; a bull calf by Prince Imperial, from Oakleaf; and the infant of the herd, the last produce of China, in the shape of The Duke of Chester, so called from his being the first that was dropped to the Fifth Duke of Oxford, after his victory on the plains of the Dee. His fine quality and remarkably beautiful head make him worthy of his name; and he has found a new owner at a hundred pounds.

Old Anna had a few last words with us on our return, to correct some statement about Baroness; but she treated with proper disdain all our hints that she should make "her positively last appearance" in the Shorthorn world, and try those soothing wiles on The Fifth Duke, which had won her Young Grazier's heart. She does not, however, monopolize all the character of the place, as it came out in a remarkable degree in the omnibus youth. Sundry embraces and trunk hoistings had made him very late, and the smoke of the train was full half a mile beyond its accustomed point, when we got to the last long bit of level road. Nothing daunted, he set to, and with his cigar in mouth, his left hand on his hip, and his cap knowingly cocked, he remarked that now he would "just give us a touch of the mail coach days." At first, we felt as much concerned as if another "Peter the Wild Boy" had been caught in the Grange Whin, and raised forthwith to whip's estate, and heartily wished ourselves (as we held on for our life, amid those perilous rockings) at the quiet side of Symphony once more; but a fourteen-miles-an-hour velocity just beat the train, and a most fearful pour down to boot, in a most exciting finish; and we were soon snugly *en route* for Athelstaneford.

CHAPTER X.

THE BABRAHAM HERD.

Babraham, Tiptree, and Doncas*tere,* are said to be the three shrines, towards which all foreigners of agricultural and stable mind, journey, like pious pilgrims, before they depart from our shores. Like them, we had been insensibly led to believe that Mr. Jonas Webb was quite unitarian in his admiration for a long line of fleecy heroes, whose fame had been spread through Old Babraham, Plenipo, and The Captain, into all lands; and we were hardly prepared to find that while the Southdown flock was still in its full strength, a herd of 142 head of shorthorns had gradually arisen at its side. It was no little relief, with the hot shout of "Promised Land!" and "Mayonaise!" still ringing in our ears, to get quit of The Devil's Dyke at last, and find ourselves on these Downs, so fraught with Bishop's Charity and Quaker Charity Farms, which separate Babraham from Fulbourne, and with no other sounds in the air than the lazy tinkling of the wether bells, the fitful objurgations of the crow boys, and the ceaseless chatter of a troop of girls, busy among the mangel ridges, in the best of spirits, and the broadest of straw hats. Cambridgeshire told its true Christmas tale, as we turned off the Roman road, and espied another of these fair Broadbrims looking after a flock of turkeys, while she plied her crochet work under a scanty hedge; and then Babraham began most unmistakeably to prophesy of itself, as we approached "The Reed Barn," and part of Mr. Samuel Webb's flock of southdowns would hardly get out of the way. Anon we leave Gog and Magog, with their thirty-three church prospect and their Godolphin Arabian glories, to the right, and we are soon skirting the well-wooded park of Mr. Adeane, M.P., whose southdowns and pheasants seem to flourish in harmonious fatness. Mr. Webb once lived in a portion of this park, but the site of the house where three-and-thirty years come July he entertained the guests at his first ram-letting, has been merged into a plantation. The meadow, which was erst the scene of those busy marts, is still rich in buttercups as ever; and as we think of the great agriculturists John Duke of Bedford, "Portland," Earl Ducie, and a host of others who have stood there in their time, the Granta brook, which does not rise into the full-blown dignity of "the willowy Camus" till it nears the University, which has written so much in English and Greek and Latin in its honour, may well seem to whisper as it ripples gently past,

> "And men may come, and men may go,
> But I flow on for ever."

Two thousand at least rallied round Mr. Webb at that spot, in the year of The Cambridge Royal, and it was then that the Duke of Richmond, with rare foresight, made his first 100 guinea offer for a mere ram lamb, which was destined to win the head Royal prize at Liverpool and Bristol in succession, and then to earn his name "Clumber," from the home of his noble hirer: Dick Gurney, the best "jockey of Norfolk" across the pastures of the Pytchley and the Quorn, was not thought "too bold" when he offered 360 gs. in vain for Thickthorn (whom he had hired the year before) and his sons Babraham and Cantab. The agents of crowned heads are also busy each July in the new letting meadow, and the Emperor of the French paid his tribute to the "dark faces" at the Paris Exhibition of 1856, by the presentation of a piece of plate to Mr. Webb, with the "truly British" design of a couple of blood-mares and their foals, standing under the shade of a gnarled ivy-grown oak.

A chesnut Suffolk mare, and a foal by Mr. Fisher Hobbs' prize horse, was the only occupant that morning of the meadow, which lies within a stone's throw of the present residence; and although the paddocks were plentifully dotted with rams, it was not until we got into the fold yard that we became cognizant of the presence of shorthorns at all. Mr. Webb's farms consist of about 1,200 acres of arable and 100 of pasture, and his herd is kept specially to make straw into manure. They are all fed well for this purpose, but forcing and training for shows is not part of his plan. No cow brings up its own calf, but the most promising young bull has simply two or three sucks to keep the wind off his stomach, and nurses are unknown. The herd, which was begun in 1837, is made up from six different tribes, the first of which was purchased, through the agency of Mr. Strafford, from a Mr. Allison, in Nottinghamshire. It consisted of *Medusa* and Moppet; and it was from the former, of the Spencer blood, that Mr. Webb bred Victoria, by Chancellor (3335), whom he showed at the Cambridge Royal as a yearling. Through this cow, whom he was especially anxious to cross with Mr. Adeane's best bulls, the tribe went on; and First Duchess of Richmond, Lady Godolphin (who had twins four times in succession), and Lady Caroline, the dam of four Lord Dacres, three of which went abroad, have sustained it right well. Two years later, Mr. Webb dipped again into the Spencer blood, with *Dodona*, by Alabaster (1616), from Mr. Mason's No. 6. She had already bred two calves; but, although she was only five years old, she was thought to be a somewhat speculative purchase. However, she had twin heifers to Vanguard (5545), only one of which, Duchess, was retained, and then Countess, the dam of Lady Louisa and Lady Ann, the latter of whom has bred twelve living calves. Vanguard, who was purchased by Mr. Adeane from Wiseton for 50 guineas, as a calf, was a very good bull; and Mr. Webb used that gentleman's Pam (6272) and Paris (7314) very freely, and did not keep one of his own till he purchased Minstrel (8687), in 1845, from Mr. Maylans, of Warwickshire. He was by Accordion (5708) from Charmer, by Little John (4232) of the Fawsley blood, which it seemed desirable to cross with Lord Spencer's. Scrivener (10791) was purchased from Lord Ducie in 1849, and through him and Lady Bird from Belinda, Mr. Webb had a double dip into old Usurer in one year. It was about this time, too, that he added Red Roan Kirtling by Battus (7816), from Bessy, half sister to Buttercup, to his bull list, and by putting him on Countess, got the Marquis of Bute, the sire in his turn of the Earl of Hardwicke. Mr. Bates's stock found its first representative in *Celia* by the Third Duke of Northumberland, who was bought at Mr. Beaufort's, of Bletsoe, sale, in calf to Percy by the same bull, and the produce, The Countess of Hardwicke, was the eldest of ten. Mr. Webb's eldest son, Mr. Henry Webb, has some representatives of the first three tribes at his farm at West Wickham; with their produce by Young Cheltenham, besides a pair of twin Duke of Cambridge heifers from Flora by Kirklevington (14333), and others of the Cheltenham stock, but time pressed, and we were unable to visit them.

A fourth tribe was added in 1848, through *Belinda* by Ranunculus (2479), from Sylph by Sir Walter (2637). After Lady Bird by Usurer, she had Lord of the North (11743) and Lord of the South (13216). The latter went for 150 gs. as a yearling to Australia, leaving only four or five calves; and from the cross between Lord of the North and his dam, the only instance in the herd, came Young Sylph, who found a 120-guinea purchaser as a yearling at Paris. Belinda bred in all three bulls and three heifers; and Lady Bird, with four heifers by Lord of the South, still represent her in the herd. The purchase of *Boddice*, the founder of the fifth tribe, originated in Mr. Webb's not caring to go beyond his five-hundred-guinea bid for Duke of Glo'ster (11382), amid the frenzy of the Tortworth sale; and hence he was determined to buy something in calf to him, as well as a bull by him. The determination was neither rash nor unfruitful, as Boddice (125 gs.), and in calf with Duchess of Glo'ster, not only brought a strain of Lord Ducie's old Bessy into the herd, but bred Grand Duke (12695), who was sold for 200 gs. at Paris; while Cheltenham, the 125 guinea Tortworth calf, and the sire of both her Grand Dukes, put his mark for good more unmistakeably on the herd than any other bull, and was sold after three seasons for the same price to Lady Pigot. The Princess tribe was also added through *Daffy Gwynne*, who was bought at Mr. Tanqueray's sale in calf to the Duke of Cambridge (12742); and it was in order to get a double "Oxford mixture," by crossing her with the produce, Duke of Cambridge (14433), that Mr. Webb would not leave *The Beauty* at Mr. Combe's.

The Duchess of Glo'ster was almost the first cow which caught our eye as we crossed into the largest fold-yard. She bears a strong resemblance to her sire in her general look and quality, and is remarkably sweet about the head. Mr. Webb has twice over refused 300 gs. for her; and she is so deep a milker, that they have sometimes to milk her three times a day. Countess of Mexborough, a daughter of the Countess of Hardwicke, is another honourable name in the Babraham peerage; and her dam was scarcely one and twenty months when she was calved. Like their eldest sister, Heartsease and Happiness bore no witness against this early breeding, as the Australians liked the former sufficiently to give 200 gs. for her; and Happiness, who was sold for 50 gs. more to Lady Pigot, won the first prize in her class at the Royal Irish Society last year, and the gold medal as the best of all the cows as well. Unluckily she caught cold on board ship, and died soon after she reached Chippenham Park. There was also the Countess of Caledon, and her sister the elegant Lady Stuart de Rothsay, both by Red Roan Kirtling; Lady Elizabeth, a younger sister of the Countess of Hardwicke, stood near her, holding silent converse with Queen Lily, a very good gay heifer of the Dodona tribe; while Daffy Gwynne, with her fine size, and that remarkable head which has been preserved in the tribe for forty years, reminded us once more of the "old, old fashion." Just underneath the antique pigeon-house, we found the first relic of Young Holland, who perished from a stroke last year, when the sun rose to 132 degrees vertical heat, above the Chelmsford show-yard. They got him out of it, after he had won the open challenge prize, without comprehending the extent of the mischief, and he walked in the evening from the Chesterford station to Babraham, but he was found dead in his stall next morning, as cold and stiff as a piece of black marble. The young bull Goldfinder, from Lady Jane, was a thick, good-looking animal, but too shy to show himself to any advantage. Standard Bearer by Earl of Hardwicke represented Lady Jane this year in one of the calf-houses; and in the next one was a daughter of the Countess of Caledon, who dips slightly in the back like her dam; but still there is very good length and a remarkably good coat to compensate. Astræa's calf, the first that has been dropped to May Duke, kept her company, and has a good deal of the Gwynne style about it. There were also two more of the Earl of Hardwicke's bull calves; one of them a remarkably lengthy one from the Duchess of Glo'ster, and another from Lady Ann, especially good in the shoulder, and rich in the hair. Young Holland also claimed two out of the three bull calves who came bouncing out next on to society. One of them, from Mocking Bird, has a peculiarly catching forehand, and his horns go back with that sweep which lends such a delicate grace to the head of Rose of Athelstane; but the one from Lady Stuart is decidedly the truer and the thicker throughout. Old Lady Ann, the patriarchess of the herd, was in another yard, and she still looks wonderfully gay and straight for her age. Lady Jane is not one whit behind her in her breeding powers, and she goes as a capital representative of the blood of Red Roan Kirtling into the cow class at Warwick. Young Celia, a remarkable milker, and very Bates-like in her general look, was there, and her head stood out in contrast to the somewhat Roman one of Miss Abigail at her side.

The cream of the yearling heifers composed a quartet, in a sort of intermediate yard between this and the one allotted to the bulls. Miss Emily and Lady Alice Burdett, the one with a great deal of the Athelstaneford and the other with the Warlaby character about it were perhaps the pick; but Duchesse de Maille was a good third, nearly equal in her substance, but not quite so striking; while Second Duchess of Glo'ster has rather a coarser head and requires time. The two senior bulls, Earl of Hardwicke (14476), and Duke of Cambridge (14433), stood tied up behind large canvas curtains, parallel to the entrance of their shed; and hence at first sight we were only favoured with a glimpse of the fine lengthy huggins of the one, and the strong Daffy Gwynne head of the other. "The Duke" has quite a Godolphin crest, and is remarkably low in the twist; while "The Earl" pleased us more especially by his fine length generally. There has as yet been only one more bull out of the eleven from his dam, but it was castrated in consequence of an injury in attempting to jump a gate. Three younger bulls were tied up in another shed, one of them a half-brother to "The Duke" by Young Holland; and Gold Jacket by Young Cheltenham, a very thick one, who is bound to Australia. There were also a trio of heifer calves of remarkable promise on the other side of the wall, one of them by the Earl of Hardwicke from Young Celia, with a very beautiful head and long crops, but unfortunately just too old to show as a yearling; while Lady Alice had no mean belle to follow her, in Lady Augusta Burdett.

Before we sallied forth again to the two outlying farms, we turned for a slight interlude from beef to mutton. Even in our Shorthorn researches in the Home farm, the embodiment of the latter was always in view, in the shape of "Derby" reduced two thirds, and doing duty as weathercock, on the top of the old barn. The leg of mutton point on which he was so great, has certainly been made the most of by the modeller; but it comes out in all its strength in many of his descendants among the July yearlings. The old long-horned Norfolk rams, whose narrow backs and sharp spines proved such a very uncomfortable seat for Mr. Webb, when he used to ride them in his boyhood at West Wickham, and set him a thinking in his maturer years, live only in story at Babraham now; and not one even is kept as a relic of the dark ages. The Southdown flock at present consists of about 1,400, and about 1,000 lambs as well. Originally there were three tribes, but a fourth and fifth have been added; and Mr. Webb never hires rams, as he can now always keep the blood sufficiently distinct without it. In number the tribes are nearly equal, and they have all produced prize sheep; and at present there are from 120 to 140 rams, for letting next month. The selection is made within fifteen days from lambing, and upwards of 200 ram lambs are retained each year. Besides the elaborate ear marks, and divers others on the shoulder and hip, they have cabalistic crosses of green above yellow, blue above red, and so forth, on their sides, which tell their descent at a glance to their owner's eye; and furnish an unfailing clue, when they rise to ram hogget estate, and are ripe for entry in the Flock Book. All the fleeces are weighed, and if they do not come up to 7 lbs. the ewe hoggets are sold to go abroad. The Old Babraham shearlings nearly all averaged 8 lbs., and although the late mild winter and spring was not favourable to the growth of wool, the majority of the fleeces this year have touched it. The nature of the soil is, moreover, not peculiarly favourable to wool, as it is gravelly, and almost fine enough for an hour-glass; and the sand rather prevents the grease from getting through the fleeces. Mr. Webb never sells ewes in England: he has a few from twelve to thirteen years old, and he has bred from them at fourteen, but the rams are seldom let beyond their seventh season; and the heaviest of them have killed at 50 lbs. a quarter. The losses among the breeding ewes are calculated at about one in twenty; and as the difficulty of breeding is much enhanced by the want of grass, Mr. Webb has had anything but a May-game of it, in bringing his flock to their present position. Two lots of yearling rams, making some forty in all, were in training for the final Warwick Royal Selection, on some seeds behind the house. They were principally by the prize old sheep and the first and second prize yearling at Salisbury; and we found on enquiry, that the second prize old sheep has gone to America. Plenipo, who was a yearling in 1834, when his great chesnut namesake and neighbour was in his zenith, swelled the tide of Southdown success for Mr. Webb; and The Gentleman, Clumber, Liverpool, Shrewsbury, Derby, Young Elegance, Gloucester, The Captain, and Old Uncertain, &c., have never suffered it to ebb. There was Fancy Boy also, who was never let, and hung himself in early life in a fence; Perfection, the sire of The Captain, for whom Mr. Lugar's offer of 150 guineas as a yearling was refused; Dictator, who elicited a like answer; and Windsor Castle, the conqueror of his half-brother at Windsor, who received the name of The Queen's Own, from her Majesty's expression of dissatisfaction at the verdict, though the royal prerogative was not potent to reverse it. Fifty yearlings for letting were busy on the yellow globe mangel in another paddock; and two renowned heroes, to wit Old Duke and Young Plenipo, were railed off in state at one end. The latter has the Babraham flock blood in him for ten generations on the dam's side; and Mr. Webb valued him so highly, that, in spite of a 200 guinea offer, he kept him for two seasons, and let him last year for the first time. Old Duke is five years old, and has achieved 410 guineas at three lettings. In one of them Mr. Henry Overman bid 169 guineas; and the Duke of Richmond made it even money, and got him. The pasture behind the fold yard was full of Old Duke's descendants; and Young Captain, the flock patriarch of the Emperor of the French, who hired three last year, could also claim a hand in some of the ninety couples of glorious legs of mutton, which scampered off at our approach.

A short ride past Sawston Hall—whose woods, with Mr. Adeane's, encircle the farm, like a dark green belt—and the quaint old village cross, brought us to the Huntington Farm, amongst the herd once more. Fourteen or fifteen cows were in the fold-yard. There was Young Wallflower (whose first bull by Cheltenham went to Sweden), looking very poor, but with a rare character at the milk-pail; The Countess of Hardwicke, with her fine wide hips and great length, and reminding us both in her staring colour and general character of Aylesby Garland; and Empress of Russia, the eldest daughter of the Countess of Mexborough, and a nice snug cow, and rather neater in the offal than her dam. Along with them, we also noted Miss Bletsoe, one of whose bull calves is in the royal stalls of Holland; Grace Aguilar, the dam of Thorndale, and, like Lady Sextus and Amy Robsart, of Wiseton descent; Queen of the May, the dam of Mayduke, another of the snug ones; and so on to Lady Caroline. We then entered the barn, and as the eye gradually settled to it, we were conscious of a long dim vista of calves and bulls, arranged along the sides and ends. In fact, every barn and building seemed as inexhaustible in shorthorns as the conjuror's hat is of eggs and other knick-knacks at a Statty Fair. They came on to us out of snug little hiding-places when we least expected them, and those hiding-places were legion. Six heifer calves were housed on one side of the barn, with Lady Elizabeth Yorke, a daughter of the Countess of

Hardwicke, as the belle, and Miss Amelia next to her in merit. Lord Royston, a yearling bull from Miss Bletsoe, then marched out in the shape of a good-looking red animal, very like Cheltenham both in colour and his forehand. A stylish Brother to Sir Charles, by King Alfred from Ermenstrade, followed with Lord Derby, by Second Grand Duke (14640), behind him. His lordship was rather thin in condition, as he was taken from the milk too early. His half-brother won the yearling bull prize at the recent Colchester Show; where a Cheltenham yearling heifer was alike fortunate in her class. Young Merry Lad, a very gentlemanly gay bull, with good crops, fine quarters, and a very blood-like head, along with Captain Cook and two others exhausted the bull supply in the barn, but a couple were still to come from the adjoining stable. May Duke, the winner of the challenge prize at Colchester, who has so amply vindicated Mr. Webb's Duke of Glo'ster fancy, showed first, and although he may, perhaps, be a little on the leg, and not very catching in his crest, he is one of those even-made useful bulls, with the best of backs. For his age, Sir Charles has, perhaps, more size and finish than any of them, and it seemed as if a wheel-barrow would go with ease through his front legs. His quality was undeniable, and he is very long and good in his quarters; and another year ought to make a very grand bull of him.

It would have been strange indeed if we had not "drooped and turned aside" once more from the shorthorns, to visit a flock of 300 ewes and lambs, before we proceeded on to the North farm. The dam of Young Norwich and Young Plenipo needed no pointing out, as the veriest tyro ought to have challenged her as "a mother of the Gracchi;" and there was also the dam of the 197 guinea ram by Young Elegance, with a ram lamb, by a son of Young Plenipo, at her side, which bids fair to be as good a Southdown King in its turn. Three more sons of Young Plenipo were among the forty picked rams, who were ruminating with Young Duke among the clover of the North farm, which lies rather more than midway between Sawston and Babraham. Eight heifers were its principal tenants; four of them by Cheltenham, and four by Young Cheltenham. There was Lady Pigot, a roan yearling, wide and close to the ground, and half sister to Lady Mary Craven, who is unfortunately just too old to show as a yearling. She is among the very best of the herd, with a wonderful middle especially, well placed shoulders, and the sweetest of heads. Rising Star, a clever Suffolk chesnut of Mr. Webb's, occupies the stable, and his dam, who was never put to the horse till her twenty-second season, is still "chating Natur" by working in her twenty-seventh.

But orthodox as the chesnut is, we cannot afford to linger over him. We have passed through the last flock of Southdowns, and under the broken arch of the grass-grown Newmarket railway, and we are once more on the high road, with a troop of gaunt Hampshire downs grazing at its side, as if on purpose to reduce us, at one fell stroke, back to the contemplation of the sheep-walk of common life. The Field farm has next its shorthorns to show, with a Daffy Gwynne heifer by Young England, an especially good roan twin from the Countess of Mexbrough, Celia II. and old Wallflower among them. A roan bull calf by Young Duke of Cambridge, from a Cheltenham heifer, will also bear looking at and handling as well; and "The Duke" and the Duchess of Glo'ster have no reason to be ashamed of the Prince of Prussia, a long, low bull, with a forehand very full of character. But the herd was not at an end yet, and the old inn yard at Chesterford, of which the walnut tree, under whose shade generation after generation of postboys must have smoked their pipes, is still the time-honoured centre, has yet to be visited. The stables, from which 40 pairs could issue on a Newmarket week, have given up their old vocation. Miss Goodwood, no unworthy sister to Lady Pigot's Empress of Hindostan (who has vindicated the honour of Babraham both at Barnstaple and Swaffham already), and a good roan heifer by Cheltenham, from Lady Jane, lent life to them yet. Ermenstrade, with the neatest of shoulders, and altogether a remarkably sweet style of cow, had a loose box to herself, and looked none the worse for having very recently got rid of a putrid skeleton of a calf six weeks after her time. There, too, occupying a whole stable, whose stalls had vanished, was The Beauty, a great slashing cow, though perhaps a trifle weak behind the crops, and her very clever blood-red Marmaduke heifer calf, with that beautiful head, which is the badge of all his stock, railed off beside her. Remembering the steady but exciting biddings for this cow at Cobham, we should like to have seen more of the pair in their new abode, but the railway whistle told us there was no time to "dwell," and the land of the Southdowns was soon upon our lee. D.

WOOL.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The wool of his sheep is not only interesting to the farmer from its commercial value, but after being wrought into woollen fabrics he gladly repurchases it as a powerful manure.

It is only in modern times that his wool slowly escaped from the care of the legislature, or almost as tardily became known to him for its fertilizing powers.

It was as early as the year 1337 that we find the exportation of English wool prohibited. The same measure of injustice to the farmer was conferred in 1521. And in 1696 the *wisdom* of Parliament was evinced by the prohibition of the export of wool from England, or even from Ireland into England. It was not till the year 1824 that the acts of Parliament restraining the exportation of wool were finally repealed. It was not always, however, without reason that the Parliaments of other days interfered with the *production* of wool.

Even as late as the sixteenth century the flock-masters of Ireland and Scotland had a summary way of gathering the wool from the sheep, which the rulers of those times were enlightened enough to restrain. Thus, by the act of the Irish Parliament (11 and 12 Charles II., c. 15), entitled "An act against plowing by the tayle and pulling the wool off living sheep," it is declared that "in many places of this kingdome there hath been a long time used a barbarous custome of ploughing, harrowing, drawing, and working with horses by the tayle, whereby (besides the cruelty used to the beasts) the breed of horses is much impaired in this kingdome. And also divers have, and yet do use the like barbarous custome of pulling off the wool yearly from living sheep, instead of dipping or shearing them." These miserable practices were then declared to be illegal, and to be punishable with fine and imprisonment.

It is evident, however, that there had been a previous Irish ordinance on this subject, since such a reformation is referred to in a letter written to his Scotch council by King James, in 1617.

Chambers' Annals of Scotland (vol. i. p. 471) gives an extract from a curious entry in the Scotch Privy Council Record. The document states that "In some remote and uncivill places of this kingdom an old and barbarous custom was still kept up of *plucking the wool from sheep instead of clipping it*." The king hearing of the practice, wrote a letter to his Council, denouncing it as one not to be suffered; telling them that it had already been reformed in Ireland, under a penalty of a groat on every sheep so used, and was "far less to be endured in you." The Council immediately (March 17, 1617) passed an act in the same tenor, and after stating that many sheep died in consequence of this cruel treatment—concluded with a threat of severe fines on such as should hereafter continue the practice. "It is remarkable," adds Mr. Chambers, "that in the Faroe Islands there is to this day no other way of taking the wool from sheep than that which was then only kept up in remote parts of Scotland."

It is curious to notice by what slow degrees just notions were adopted with regard to the sheep and its wool, not only by the Parliament but by the farmer. We can only get hints of these things from the early English agricultural writers. Old Worlidge, in 1680, in his considerable folio work on agriculture, barely bestows a dozen lines upon the sheep. He tells us that in his time "The Herefordshire sheep about Leominster bore the fairest fleeces of any in England." But Worlidge ever seemed to prefer the live stock that had the most young ones at a birth: thus he concludes of the sheep, "But the Dutch sheep are the largest of all, being much bigger than any I have seen in England, and yearly bear two or three lambs at a time. It is also reported that they sometimes bear lambs twice in the year."

Whatever may have been Worlidge's notions with regard to sheep, he was evidently aware of the value of woollen substances as fertilizers, for he tells us in his chapter on the Manuring of Land, "In rags of all sorts there is good virtue; they are carried far, and laid upon land, and have in them a warming improving temper; one good load will go as far as a dozen or more of the best cow dung."

It was nearly two centuries after the time of this early English author on rural affairs that the use of woollen rags as a manure began to be better understood, and especially as to the portion of them in which their fertilizing virtue consists.

To this question Professor Way addressed himself with his usual caution and amount of success. He very justly felt that it would hardly be satisfactory to content himself with the analysis of wool, since, as he observes (*Jour. Roy. Ag. Soc.* vol. x, *p.* 617), to reason from the composition of a raw material of any kind upon that of the manufactured article, which has passed through perhaps half-a-dozen processes, is often to lay oneself open to much error; and nothing short of the direct analysis of the rags themselves would enable any person to form a correct notion of their manuring value. Wool in a state of purity contains upwards of 17 per cent. of nitrogen. Were woollen rags, therefore, of the same strength as the wool itself, they should produce *ultimately* a larger amount of ammonia than even pure peruvian guano. It will be valuable, then, to examine the chemical compositions of some of the commonly sold refuse woollen rags. These rags are well known, and extensively employed as a manure in some parts of our island. Owing, as the Professor remarks, to their slow decomposition in the soil, they are not well fitted for root culture—turnips and other plants of this kind requiring active and readily soluble manures to produce a rapid growth. Still this must not be taken as an undoubted fact, since, in the experiments of the late Mr. Pusey on the growth of beetroot (*ibid.* vol. vi., *p.* 530), when 13 tons of farmyard manure per acre produced 27½ tons of clean roots, the *addition* to the dung of 7 cwt. of rags raised the produce to 36 tons. This increase he attributed to the large proportion of azote or nitrogen present in the rags.

Woollen rags were formerly, as Mr. Way adds, to be purchased of good quality, and unmixed with any less valuable substance; but of late years rags, of a size that used to be sold to the farmer, are bought up to be reconverted into an inferior kind of cloth. The supply being in this way in part cut off, is frequently made good by the admixture of such linen or cotton rags as may not be worth the papermaker's attention.

Three specimens of these refuse rags were examined by the Professor. Specimen No. 1 consisting of the seams and other useless parts of old cloth, which had apparently been cut up to be re-manufactured into cloth. No. 2, called "premings," and No. 3, "cuttings," appeared to be much of the same character, but totally different from the rags—they both consisted essentially of coloured wool less than an eighth of an inch in length. These all contained in their ordinary state a certain proportion of water. In the three specimens above referred to, the

	Per cent.
Rags contained of water	7.87
Premings	7
Cuttings	8.70

In this state the proportion per cent. of nitrogen which they contained, and the proportion of *ammonia,* which, by the decomposition of the animal matter, will be eventually produced from them, and from a specimen of "shoddy," is given in the following little table:—

	Nitrogen.	Ammonia.
Rags .	10.47	12.71
Premings .	9.92	12.05
Cuttings .	11.84	14.31
Shoddy .	4.55	5.52

It appears then, says Way, that it is quite incorrect to estimate the value of the different kinds of woollen refuse by the known composition of the wool itself, for, to whatever cause the inferiority may be due, it is plain that they do not, on an average, contain two-thirds of the nitrogen found in the raw material.

The mineral substances found in wool refuse are of small fertilizing value. In 100 parts of some inferior wool refuse were found

Water	7.15
Animal matter and oil	58.52
Phosphate of lime	1.48
Oxide of iron and alumina	2.10
Carbonate of lime	9.42
Sand, &c.	21.23
Loss, &c.	.10

This specimen contained about 2.5 per cent. of nitrogen.

Professor Voelcker has explained the chief reasons for the considerable difference of opinion, which exists in different places, with regard to the fertilizing value of woollen substances (*ibid* vol. xvi., *p.* 94). These, he considers, are to be best understood by a reference to their analysis, and the time of their application, and the physical composition of the soil. Shoddy, for instance, often contains from 20 to 25 per cent. of oil, which, by excluding moisture, and the atmospheric air from the interior of the wool hairs which compose this refuse, prevents its decomposition, as effectually as the oil in sardines, or a cover of grease the potted meat. And thus the decomposition of the shoddy is retarded for a considerable period, so that no effect is produced if it is applied to the land when the young wheat has already made its appearance, or even if applied two or three months previously. But if the same refuse is applied to the land a considerable period before the sowing of the crop which it is intended to benefit, or if it is previously brought into a state in which it will readily ferment (and then it may be applied at once to the young wheat), a very marked and early good effect will be produced by its use, since ammonia is then gradually formed from the nitrogen of the shoddy. In light and porous soils this necessary preparation proceeds much more rapidly than in stiff heavy lands.

The farmer by his practice confirms these chemical conclusions. The Kentish hop-growers, we are told by Mr. S. Rutley, in his prize essay (*ibid* vol. ix., *p.* 562), deem woollen rags, shoddy, and refuse seal-skins to be very lasting manures, but much more valuable and early in their effect on dry than on wet soils, all of them being the best adapted for the soils of the Kentish rag. On the Kentish hop grounds they apply from 12 to 20 cwts. per acre of woollen rags, 20 to 30 cwts. of shoddy, and about 160 bushels per acre of seal-skin. For corn crops on light chalky land, or for grass, about 10 or 12 cwts. per acre of woollen refuse are used in Oxfordshire and Berkshire.

The amount of wool produced by different breeds of sheep was some little time since ascertained by Mr. J. B. Lawes. The average weight of the wool per head, produced from 50 wether Cotswolds, 40 Sussex, 43 Leicesters, 40 Hampshire Downs, and 41 cross-bred wethers, was as follows :—

	lbs.	oz.
Cotswolds	9	4¾
Hampshire	6	4
Sussex	5	10
Leicesters	8	2
Cross-breds	6	7

The proportion of wool to 100lbs. of the live weight of the sheep, at the time of its being shorn in March, was

Cotswolds	5.44
Hampshire	3.77
Sussex	4.57
Leicesters	5.58
Cross-breds	4.60

Mr. S. Bruce, of Ensham, considers the average weight of the fleeces of different breeds of sheep to be as follows (*Farmers' Almanack,* vol. vi., *p.* 219) :—

	Ewe.		Teg.	
Cotswold	5 to	7lbs.	7 to	10lbs.
Leicester	4	6	5	8
Hampshire Down	3	5	5	7
Pure Southdown	2	4	3	6
Cross Cotswold and Southdown	4	6	5	8

The importation of foreign wool has largely and steadily increased during the present century. Previous to the year 1800 all the wool annually imported barely exceeded 3,000,000lbs., and this was chiefly Spanish. About the year 1801 this had increased to about 9,000,000lbs.

In 1810 to	10,914,137 lbs.
1820	9,789,020
1830	32,313,059
1840	49,436,284
1850	74,326,778
1858	126,738,723

Of this large quantity in the year 1858, 16,597,504 lbs. came from the Cape of Good Hope, and 51,104,560 lbs. from Australia. Of these imports, 14,054,815 lbs. were exported in 1850, and 26,587,426lbs. in 1858.

A considerable quantity of foreign woollen rags, fit only for manure, are also yearly imported. In 1830 they amounted to 411 tons, to 1052 in 1840, and to 1102 tons in 1842—since which I am not in possession of an official statement.

It is remarkable how little the large supply of foreign wool has tended to reduce its English market value. From 1784 to 1790 the price of Southdown wool was about 1s. per lb.; in 1800 it was 1s. 5d.; in 1810 2s. 4d.; in 1820 1s. 5d.; in 1830 it had fallen to 10d.: it is now about 2s. And not only has the flock-owner had to contend with an annually increasing import of wool, but, moreover, the number of our sheep, and, consequently, the *home* produce of wool, has enormously increased during the present century; and, again, from improvements in their breed, the weight of their fleeces has also become considerably greater. The number of sheep in Great Britain were estimated, in 1698, by Gregory King, to be about 12,000,000. In 1740 they were calculated to have increased to 16,640,000. Arthur Young, in 1774, thought they were about 25,589,754; and in 1801 Mr. Luccott estimated them at 26,148,463. They are now estimated to be about 35,000,000—England possesses 27,000,000, Scotland in 1854 had 4,787,235, Ireland in 1853 had 3,142,656, so that at 30s. a head the sheep stock of Britain is worth £52,500,000. About 10,000,000 are annually slaughtered; these at 80lbs. each furnish 800,000,000lbs. of mutton, which at 6d. is worth £20,000,000 sterling. Professor Lowe thinks that on an average each fleece weighs 4½lbs., so that the total produce of wool will be 157,500,000lbs.; fixing then the total yearly value of the wool of Great Britain at 1s. 3d., this produces nearly £10,000,000.

As regards the increased weight of the fleece, in 1800 Mr. W. Nottage, of Bermondsey, fellmonger, ascertained that Southdown sheep, when slaughtered at full maturity in London, produced about 3½lbs. of wool per skin. Thirty years afterwards he found that they yielded from 4 to 4¼lbs., and that this has still farther increased of late years.

I trace these very important and interesting statistical facts with the more pleasure, because I feel that happily my countrymen possess, in their sheep farming, one branch of the profession of agriculture which well rewards them for their skill and energy. Fortunately, too, there are as yet no symptoms of the flocks of England being exhausted in their produce, or deteriorated in value; but, on the contrary, there is yearly to be found in our island more numerous, and more productive flocks; and in support of these a larger, a better paid, and consequently better fed and warmer clad population. Happily too for our country, whilst the demand for woollens and mutton has thus largely increased, foreign importations, however considerable, have failed to diminish their market value.

THE ADMINISTRATIVE OF THE ROYAL AGRICULTURAL SOCIETY.

On the very eve of the great Meeting of the year, the Council of the Royal Agricultural Society have determined on the dismissal of their most responsible officer. It is very evident, from the Special Councils called and the several reports received, that the administration has of late had a difficulty to deal with. The public, or the general body of members, have had no information whatever as to the nature of this, but rumour has of course been busy enough. The step, indeed, resolved upon at the last Special Meeting, was so far expected, that for the last few weeks it was impossible to enter any company of agriculturists, but you heard of some one or another who was canvassing for the appointment of Secretary. It is as well, perhaps, that the Council have now put this matter beyond a doubt, as all will at least have a chance to start fair. Hitherto "the best informed" have had a somewhat undue advantage; but with this formal announcement that the office is vacant, we are sure to have many more Richards in the field.

With so good a locum tenens, however, as Mr. Brandreth Gibbs, the Council appear inclined to be anything but precipitate. A Committee has been appointed "to take into consideration and report to the next General Council what in their opinion should be the general and particular duties of the Secretary, and the mode of his appointment." This Meeting will be on the 6th of July, as the first Wednesday in the month. So far as it goes nothing can be better than this. We may reasonably assume there has hitherto been something wrong as to the interpretation of such duties. The powers invested in the appointment may have been too great. Undue license may have been allowed, or opportunities existed that no man should have been tried against. It is a great principle in the commercial character of this country that in the conduct of any public business, more particularly, no one is altogether beyond control. It would be alike unfair to him and to others that he should be invested with any such undivided responsibility. As a consequence we see the several parts of the machinery each more or less dependent on the other for the safety and regularity of its action. There are none going too fast, for the one holds his fellow in continual check. The Secretary looks to the Board, and the Board in turn has to invite the scrutiny of the common body of shareholders, subscribers, members, or by whatever name they have an interest in the undertaking. Of course, if any neglect their duties, it must be in some degree at least at their own peril and cost. If the Committee permit the Secretary to do too much or too little, they have to answer for it at the next General Meeting; while if the great majority of members are easy enough to let the Committee and the Secretary do pretty much as they please, who have they to blame but themselves when the concern comes to grief?

The administration of the Royal Agricultural Society is coming to be judged a good deal in this wise. Is it fair to put quite all the blame upon one man? Are there not others remarkable for the participation they take in the affairs of the Society, who have neglected their duties? A City man once said he could always tell how a Company was going on by the way the shareholders spoke of the Secretary. If it was prospering he was "rather a keen sharp fellow." On the other hand, if the speculation did not answer so well as had been anticipated, the same official was sure to be "the biggest fool alive." From what we are forced to hear on all sides, the same kind of convenient argument will hardly tell in this case. Some of the members of the Council themselves declare that their business is seriously impeded by the injudicious interference and exclusive lead taken by one or two of their fellows in the administration. It is but natural to look directly to these, as everybody does, for some solution of this present "difficulty." Have they, when taking upon themselves these responsibilities, associated with all this power and position anything like proportionate care and vigilance in the discharge of such functions? If the business of the Society has been mismanaged, it has not been by any one man. It should have been out of his power to do so. And we are only giving expression to the common opinion now abroad, that it is not one man alone who is upon his trial.

In fact, the Committee appointed, consisting of the President, Vice-Presidents, Trustees, the Honourable Colonel Hood and Messrs. Barnett, Jonas Webb, Wren Hoskyns, Torr, Fisher Hobbs, Milward, Brandreth Gibbs, Amos, and Brandreth, have something more to do than defining the duties of the Secretary. It is utterly impossible for them to even attempt this without going further. They must also define the duties of the Finance Committee and of the Auditors, without they are willing to take the onus of these appointments generally upon themselves. And, moreover, when they are looking out for a fit Secretary, they must see whether they have a fit Finance Committee, and properly qualified Auditors. "John," said the Squire, who hunted his own pack, to his drunken aid-de-camp; "John, I can stand this no longer; and I shall get a new whipper-in." "Very well," hiccupped out John, in answer, "and if you was to look out for a new huntsman at the same time, it would be quite as well for the hounds." The Auditors are elected, or re-elected at open Meetings of the Society. So far so good. But who re-elects, and when do they re-elect the Finance Committee? One member of this Committee, we hear, has already resigned, and it would be but a graceful act on the part of his fellows that they should follow an example so honourably set them. Of course they could offer themselves for re-election.

In speaking thus out, we must be understood as not merely offering our own opinions on a delicate and painful matter. We are the rather but embodying the common talk of the country, and it has only become a question as to who shall speak first? Wherever we go, we hear the same complaint, not only from the members generally, but, we repeat, from the members of Council themselves. The deduction to be drawn from all this is in the hands of the Committee. In common parlance, they have "a duty to perform," and they know what that duty is, quite as well as we could tell them. Moreover, the whole country knows it too. There has been something seriously wrong in the finances of the Society. What can the Finance Committee have been about? The significant response of one member of it is, that he withdraws from such a duty. But why should he thus invidiously stand alone?

THE CONDITIONS OF STOCK SHOWS, AND THE CONDITION OF THE STOCK.

At the meeting of the Kirrier Agricultural Society, held at Helston, on Tuesday, June 23, Mr. **Rosewarne**, one of the judges, said, he had certainly seen many better shows than the show of that day. There was one regulation adopted by the society which would account for this circumstance. The male animals that carried away prizes at one year's show were excluded from competing for prizes at the succeeding years' exhibitions, and thus they kept the best stock away, and only obtained a second class of animals. If the society were to offer sweepstakes for the best classes of animals, these would be sent into the field, and they would thus have an opportunity of comparing them, and those sent for competition for prizes, and of ascertaining the progress they had made. If, however, the society only obtained a second class of animals for exhibition, persons visiting the show yard would run away with the impression that they were the best that could be produced in the district, whereas he had no doubt that many better animals could have been shown than had been exhibited that day. In his opinion, as long as an animal continued to be the best of his class, and was capable of working, he ought not to be excluded from competition, but should be allowed an opportunity of maintaining his position.

Mr. **Permewan** also responded. One of the objects of the society was to promote the laying on of fat by animals in the proper places. It was no use laying on great lumps of fat in one place and none in another, for nothing could be worse than great flabby animals. What they desired was to see the fat laid on regularly all over, so that whether a man was poor or rich, he should, when he bought a piece of meat, obtain a fair proportion of fat and lean.

Mr. H. **Rowe** was likewise called upon to reply. He said, The sheep were all very fine, and exhibited a marked advance on previous years. The increase in the size of the animals was remarkable, at the same time there was not so much flabby fat, which was the most unsaleable part of a sheep, and was profitable neither to the seller nor the buyer. He was decidedly of opinion that sheep were generally too fat in particular parts, and that leaner mutton would be found preferable in the market, and that it would pay the farmer better and have a better sale. People liked a good leg of mutton with a proper quantity of fat on it, but they did not like mutton with large lumps of fat which they could not eat.

Mr. **Thomas** said, one of the rams shown was certainly very large, but he was overburdened with fat. It had been said that fat was a disease and introduced disease into a flock, and for his own part he had discouraged too much fat in animals on all occasions.

Mr. J. **Thomas**, as one of the successful competitors, responded. Mr. Rosewarne seemed to find fault with the regulation which precluded the male animals from contending for prizes the year after they had gained them, and thought that they ought to be permitted to contend until they were beaten; but it was thought that when an animal had got to the top of the tree he ought to give way to others; as, if he were allowed to compete, it might prevent others from exhibiting.

Mr. J. **Tyacke**, in responding, said that he perfectly concurred in the remarks of Mr. Rosewarne as to the propriety of giving prizes to animals so long as they deserved them; as he considered that they should adopt the same principle in this respect that was followed in the case of wrestling—so long as a man continued to prove himself the best wrestler, he carried away the prize. Perhaps in the case of female animals an exception might be made to this rule.

Mr. **James Lemon** was opposed to prizes being given to male animals more than once, and having now a county show, he thought the prizes ought to be confined to animals belonging to persons resident within the Kirrier district.

Mr. **Rosevear Rosewarne** said, all the speakers agreed that the mutton now sent to market was too fat, and he concurred in that opinion, and that it was important they should endeavour to produce better mutton than at present. It could be accomplished, and it would be for the advantage of agriculture to adopt another plan as regarded their sheep. He thought that the society ought to award prizes of sufficient amount to stimulate the implement makers in that neighbourhood to produce the very best implements in their power. Wherever they went they heard complaints of the deficiency of labour; but for his own part he thought the great difficulty arose, not so much from a deficiency as to numbers, as to want of skill and ability on the part of the labourers. He thought, therefore, that they should endeavour to promote the manufacture of implements so as to decrease the amount of manual labour as much as possible. The wages paid to labourers were now nearly one-third higher than some years ago, and a farmer, holding, say, 120 acres of land, instead of being able now to manage his farm with four men, was compelled to employ six men. Recurring again to the question of fat, he said it was rather anomalous that although they all admitted the disadvantage of having an animal too fat, yet unless animals were fat when exhibited at these shows, they would not obtain prizes.

Mr. **Rous Pender** said, with respect to the question of fat, farmers could not now keep their sheep two or three years, as was once done, to feed them into mutton, but they must force the animals, and the tendency of all young animals under such a system of treatment was to make fat, and it should not be forgotten that poor people found fat very useful, making it up into their pie-crusts, and using it with their other food.

Mr. J. N. R. **Millett** thought that it was a great mistake to refuse to allow an animal to compete after it had won a prize one year. What he should say was, allow that animal to compete, keep it constantly before them, and then let them try their utmost to beat it.

THE PRACTICABILITY AND ADVANTAGE OF FARM LEASES.

At a recent meeting of the Newcastle-on-Tyne Farmers' Club, Mr. M. Dunn read the following paper:

It may, at first sight, appear a work of supererogation for a person who has not, practically or scientifically, devoted his time to acquire knowledge upon agriculture, to attempt to place before a society, consisting of land agents, country gentlemen, practical agriculturists, and other intelligent members of the Farmers' Club, remarks upon so important a subject as that which forms the title of this paper. My apology is, that having, during an extended professional mining practice in England, Scotland, and Ireland, been made conversant with the principles of mining leases, I have, at the same time, directed considerable attention to the various customs regarding the tenure, letting, and management of lands. I have heard and seen much of the misery and ruinous state of agriculture in Ireland, which has so often engaged the attention of Parliament, in the demands for redress and tenants' compensation, and hitherto without effect. I have witnessed the super-excellent condition of the cultivation in Scotland, under the prevailing custom of nineteen years' leases, and I am constantly witnessing the evil effects upon districts where leases are not granted, and where the tenancies are from year to year, or what is much the same, for short terms of agreement. I particularly allude to corn farms. I am constantly hearing it asserted and determined by farmers' clubs that the most advantageous state of the land, both for landlord, tenant, and the public, and for the obtaining the greatest amount of produce from the soil, is that farms should be held on permanent leases for fifteen or twenty years' duration; the object to be attained by such lease being that the farmer will freely spend his capital, labour, and skill upon the presumption (should he so long live) that they will produce advantages to himself and family, whilst the estate of the landlord will participate in the advantages.

Mr. Trotter, a tenant farmer of West Lothian, reporting to the Board of Agriculture, says—"That a practice has crept in of letting land on leases from nine to eleven years," which he calls a very absurd and pernicious system. "No tenant will lay out much in the improvement of a farm let on so short a lease: the land will be deteriorated, the tenant will reap no benefit from the bargain, the rent will ultimately be diminished to the proprietor, and in the end the public too must suffer their share of the evil." Mr. Trotter also recommends that treaties for renewal should be entered into three or five years before the old term expires, they tending to keep agriculture in an even undisturbed progress. Mr. Trotter deprecates the aim at a great rental rather than good improving tenants. The tenant oppressed with heavy rent fails, law proceedings ensue, he is ruined; but, in the meantime, the property is damaged. Assuming such to be the fact, I have frequently raised the question amongst intelligent persons as to the cause of such arrangements being so generally wanted throughout this district, and as yet have scarcely ever received a lucid answer. This, therefore, is the first point to which my attention has been directed, viz., the apparent difficulty in laying down such principles as will be agreeable to both landlord and tenant, which, with great deference, I enumerate as follow:

1. The difficulty of establishing a fixed rent for so long a period as 15 or 20 years, during the ever-varying state of labour and the value of produce, and this was especially difficult previous to the abrogation of the Corn Laws, during which both landlords and tenants were under constant dread of the result of a relaxation of the import duty, and consequent importation and fall in the price of grain; therefore, in the absence of some compensating medium tenant-right or safeguard, the risk to a tenant would be so extreme that the result need not be wondered at.

2. The absence of a provision for enabling a tenant not only to quit at certain appointed periods, or to alienate his lease in case of death or other circumstance, first offering it to the landlord under tenant-right compensation, so as to realize any improved value that his capital and industry may have produced. For instance, the tenant dies during the currency of his lease, without leaving a family who can properly carry on the necessary works of the farm; whilst the executors would not be justified by the Court of Chancery in risking the results, or doing so on their own responsibility. But whilst a responsible neighbour would purchase the lease from the family, he cannot without the consent of the landlord, who by this time can let the farm for an increased rent.

Upon the subject of terminating the lease, I find that many intelligent persons, land-agents and otherwise, conceive it highly unreasonable that the tenant shall have the power at certain periods to quit the landlord, unless the landlord have a corresponding power to quit the tenant. Now such a clause as this would, in my opinion, negative justice, and strike at the root of all improvement to arise from a lease. The clause in favour of the tenant would remain a dead letter so long as the holding of the farm was profitable to him. Whereas the landlord might have an obvious advantage in demanding an increased rent, under pain of a notice to quit. Without any power of terminating the lease, the landlord is satisfied to receive the agreed rent during the whole term; and should not, I submit, object to the tenant possessing the power of quitting, under circumstances which would call for a reduction of rent or a return of per cent., when imperatively demanded; for a tenant, pressed by circumstances of loss, and not allowed to quit, would obviously be an unprofitable tenant, inasmuch as he would cease to work and improve the farm as he ought to do. With the loss of production in mining leases, the power of quitting on the part of the tenant only is all but universal, and also of disposing of his lease; and I submit that the comparison is not out of course, for the meaning of a lease is the inducement to expend capital. At the same time there is a great distinction to be made between a tract of land to be brought from a state of nature, like bogs or moors for Ireland, and a farm in a high state of cultivation, when entered upon with suitable buildings and appendages.

A standing objection to the principle of disposing of a lease is, that the landlord must and will have the choice of the tenant; inasmuch as the purchaser of said lease may, in many respects, be an objectionable neighbour—may not be so moral as he ought to be, &c., &c. Now, how does the landlord guard himself in respect of the executors and administrators of a family, upon the demise of the tenant, where the lease devolves upon the child or children or widow, who necessarily call in some friend or agent to manage? It is not fairly assumed that, in case of a sale, the wishes of the landlord would be disregarded in respect to the purchaser; but rather that the family would see their object in acceding to the wishes of the landlord, especially if he had been kind and considerate to the deceased.

In many cases a compensating medium is adverted to by a sliding scale, founded upon the rise and fall in the market of the chief produce of the land*—for instance, wheat and oats; and although such an application cannot be made entirely to meet every contingency, yet it may be made to supply a certain quota, amounting to a sort of return, such as landlords are wont to give when their tenants are very clamorous. The difference between the two systems being, that in one case the tenant acquires the reduction as a right, whereas in the other case he has to entreat it from his landlord or his agent as a favour, and that after repeated applications and delays, during which the tenant's resources become exhausted, and his spirit broken. It has been suggested that instead of the tenant being allowed to dispose of his lease to a third party, that he should be allowed to quit at certain appointed periods, and should receive from his landlord the value of his improvements expended upon extraordinary outlay, on the principle of tenant-right. Now, if this were admitted, it would be difficult to make a distinguishing valuation of outlay in connection with the change of times, whereas a purchaser would simply take into consideration the rent value of the land, and apportion the premium accordingly. In case of alienation under a premium, not only would the purchaser be shown to be a substantial man, but the vendor might be held liable still for the fulfilment of the conditions of the lease.

I submit that by no other means than such as I have enumerated can a tenant ensure for his family, in case of death, a value for the improvements which he has established; for it is a very small favour to allow a widow simply to quit the farm, and leave the improved value to be reaped by the landlord or her successors.

This is the grand bone of contention in the sister-country, and which has so often, and is again to engage Parliament in endeavouring to pass a Tenant Right Bill: one party will not deal with it retrospectively, whilst the others demand a review of the circumstances from the commencement of the tenancy in existing leases. I grant that the case is widely different in this country, but it is well to bring such facts under review.

For instance, Pat Ryan's grandfather betook himself to one of the bogs, from which he was permitted, with or without a lease, but under an implied engagement, as the case might be, to enclose, with earthen mounds, a few acres. To cultivate this estate by spade husbandry, he must drain it—level it; he must also build himself a mud cabin, and there he labours to rear a family. But in the course of years this little farm improves in value, and the landlord or his agent, or the landlord's mortgagees, come in; or the lease begins to run out. So in either case, in an unlucky moment, Pat is ordered to pay a large increased rent, or to quit; and in case of hesitation, his mud cabin is tumbled, and his family driven out to starve or to emigrate. He sets up a demand for compensation, viz., tenant-right; but no such bill has yet passed, and he must submit to see his little farm pass into the hands of a neighbour, or, may be, some adventurous Englishman, who has purchased or leased a whole district; and need it be wondered at, that the poor man or his son, in their desperation, take law into their own hands, and commit some desperate deed?

Another case, which appeared in the *Daily News* of January 21, 1859, is that of a Catholic clergyman, who expended upwards of £400 on a building and improving a piece of land, under the promise of a lease from the proprietor; but before such lease was accomplished the

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* Such I understand to form the basis of the farm leases of his Grace the Duke of Portland upon the Bothal estate, the particulars of which have been transmitted to me by one of the tenants, as follows:

"Scale of reductions for calculating his Grace the Duke of Portland's rents, in Bothal Barony, commencing 13th of May, 1832. ———, ——— Farm.

"The rent of your farm is fixed to be £274 per annum, when the average price of wheat in Newcastle market is 7s. 6d. per bushel, and

When wheat is at	7s. 3d.	per bushel, every £10 of	rent will be reduced to	9	16	8
,,	7s. 0d.	,,	,,	9	13	4
,,	6s. 9d.	,,	,,	9	10	0
,,	6s. 6d.	,,	,,	9	6	8
,,	6s. 3d.	,,	,,	9	3	4
,,	6s. 0d.	,,	,,	9	0	0
,,	5s. 9d.	,,	,,	8	16	8
,,	5s. 6d.	,,	,,	8	13	4
,,	5s. 3d.	,,	,,	8	10	0
,,	5s. 0d.	,,	,,	8	6	8

"NOTE.—A few days after the passing of the Corn Bill, the Duke gave directions for the above reductions to be doubled and which has continued ever since.

"If the average price of wheat advances above 7s. 6d. per bushel, the rent shall not advance higher; and if the average price of wheat falls below 5s. per bushel, the rent shall not be any further reduced. These regulations to continue for the term of your agreement, unless any material change takes place in the currency.

"The Duke's rents for one quarter were received at Morpeth on Wednesday, the 16th February, 1859. Reduction of rents, as per scale, and average for the quarter, $30\frac{2}{3}$ per cent."

I am also happy in being able to quote the Hon. President of the club as a leading example in providing a proper system of apportioning rent.

landlord died, and his son and heir refused to acknowledge the agreement, but served a notice to quit, without compensation. An action was brought, and the plaintiff was nonsuited at law. An appeal was made to the Irish Court of Chancery, but was again dismissed. The defendant demanded costs, instead of which the Lord Chancellor pronounced a heavy condemnation for the disgraceful conduct of the proprietor. Since then the case has been discussed in the House of Commons, and has had the effect upon Major Burke, the proprietor, of inducing him to offer the priest a lease for his life, which offer has been rejected.

In this country the landlord's capital is very properly expended in the stamina of the farms—viz., buildings, fencings, roads, drains, &c.; the duty of the tenant is to handle and improve.

Upon this important subject, of the power of the tenant to alienate his lease, I take leave to extract a passage from the report of the late Robert Somerville, surgeon, Haddington, who was appointed by the East Lothian Board of Agriculture and Internal Improvement, so far back as 1813, to report to the Board on the state of agriculture in East Lothian.

Under the head of Obstacles to Improvement, p. 255, Mr. Somerville says:

"It may be laid down as a principle, that whatever deters the tenant from laying out his capital, operates as an obstacle to the improvement of the soil.

"One of the first and greatest obstacles is, that the farmer has no power to dispose of his lease, or of re-letting.

"On abstract principles, nothing appears more absurd or unjust. A shopkeeper may let his shop, deliver over his goods to his successor, and take a sum of money for giving up an established business. Why should not the farmer possess the same privilege?

"There are three very supposable cases, in which it would be clearly for the interest of the farmers that leases were subject to the same laws as other property, in case of a tenant wishing to transfer his lease to another. His becoming bankrupt, or his dying without an heir capable of managing a farm, or being desirous of engaging in such pursuits.

"The farmer may be desirous of withdrawing his capital, for the purpose of employing it on some other place, holding out encouragement for improving. He may find the farm unprofitable and above his means, and wish to give it up rather than be ruined; in which case it would be desirable that he dispose of his lease rather than be at the mercy of the landlord.

"It is nothing to the purpose to allege that proprietors will seldom withhold their consent. But why should the landlords maintain a power which may be abused? Now, it is certain that, if circumstances put a check upon the tenant disposing of his interest, the same circumstances will prevent him laying it out. In case of having full power to dispose of his lease, he would consider all money laid out on improvement as put out to interest.

"Supposing a farmer to become bankrupt, it is neither just nor reasonable that his creditors should be prevented from disposing of his lease—thus they might be deprived of benefits effected, in a great measure, with their own money. With such a privilege reserved, a farmer might raise money to carry out his improvements.

"It often happens that a farmer, at his death, leaves a number of children, whose principal support is to be derived from his lease. While none of them can direct the affairs of a farm, they could adopt no plan so profitable as selling the lease; whereas, their only resource against beggary is to throw up the lease from which they were taught to expect much benefit. The widow is unable to carry it on; but a proper person might take it, and give them a consideration yearly, or otherwise. Besides, he might prefer another member of his family as his successor, to his heir-at-law.

"In all these supposable cases it is plain that the tenant's interest and comfort would be greatly promoted by the privilege of disposing of his interest in a similar manner as a merchant is entitled to do with his brewery or his manufactory; otherwise you reduce the tenant, in a great measure, to the condition of a tenant-at-will or life-renter. Whatever is injurious to the tenant must operate against the landlord and ultimately against the country.

"The idea is as unjust as it is illiberal that the interests of the landlord and the tenant are necessarily at variance. But if the landlord by excessive rent or severe restrictions cramp the tenant in his improvements, such system must prevent the amelioration of his property. In reality the ultimate object of both landlord and tenant is to bring the soil to the highest possible state of fertility, and it must be acknowledged that the only way to accomplish this is to encourage the husbandman to exert all his skill and employ all his capital.

"The one thing needful is to give leases of sufficient length, containing proper clauses, for protecting his property during the last three or four years: the rest may be safely left to the industry of the tenants, prompted by their own interests; and in selling the lease, the landlord is furnished with an additional security for the payment of his rent, for his security cannot in any respect be lessened by the intervention of another party to the agreement.

"It may be affirmed with confidence, then, that the law which hinders a tenant from disposing of his lease, like any other piece of property, is extremely injurious to the interests of agriculture, is the greatest obstacle to improvement, and consequently injurious to the permanent interests of the proprietor, as well as restricting the production of food. Nothing can appear more harmless than binding the tenant to labour according to the rules of good husbandry—which must mean the best management according to his circumstances, and of that he ought to be the best judge. But if a landlord conceives a dislike to his tenant, or imagines that he is not managing properly, the rules of good husbandry, in the absence of power of reference, afford him grounds for litigation. The laws of entail may be regarded as opposing obstacles to improvement, but which operate more against the landlord than the tenant. The general practice of letting farms by proposal to the highest bidder, by advertising when the lease is within a short period of expiring, is pronounced as illiberal. Rather, should not the proprietor set a value upon his land, giving the first offer to the present tenant, instead of telling him he does not mean to treat with him? Of course the exception holds as against a bad farmer. In short, everything that tends to discourage the profession of a farmer, to embarrass his exertions, diminish his fair profits, or lessen his assurance of reaping the full benefit of his labour and capital, must be regarded as hostile to improvement in agriculture. Everything of this nature must tend to divert capital from the cultivation of the soil, and throw it into other channels."

It is very amusing to observe how cautiously landlords and great agricultural agents approach the subject of a just and practical lease. I just give two recent examples.

Lord Wodehouse, at the agricultural society at North Walsham, as published in the *Economist* of November 13, 1858, thus expresses himself:—

"It was exceedingly important that landlords and tenants should duly appreciate their mutual relations in what manner they can best walk in unison. The landlords are commonly conscious that their schemes of management will not bear public discussion. The landlord should do his part, and then the tenant would be better able to do his. It often happened that the landlord, not having done his part, complained that the tenant had failed to do his. This is the ordinary cause of the bad farming that prevailed in England. The result of liberal landlordism was specially exemplified on the estates of Mr. Coke. The landlords of our day possess great advantages over those of former times, in the capability of borrowing money for draining and other improvements. Long leases were a great excitement to good farming, which may often be carried out advantageously without any reduction of rent. Bad farming is the natural result of yearly tenancies, and neglectful landlords, especially where tenants do not possess adequate capital, necessarily produce bad farming and where capital is insufficient, farms should be reduced in size. However, long leases ought to be the basis. He, Lord Wodehouse, had tried much the construction of a satisfactory lease, and found it a very difficult task. Too stringent covenants ought not to be imposed upon good tenants. Agriculture, in these days, should not be kept in leading strings."

If Lord Wodehouse's example was followed by landlords these meetings would effect great good, and would produce practical results in the improvement of English farming.

Lord Wodehouse broadly proclaims in favour of long leases, and expresses his opinion as to why leases are not prevalent, setting the blame chiefly upon the landlord or his agents; and yet Lord Wodehouse finished by declaring that the formation of a just and improving lease is above his power of composition; or, in other words, he is afraid of yielding up the prescriptive power of the landlord in favour of fair and legitimate defences to the tenant.

The other example I will cite is contained in the answer of Mr. Hewitt Davis, London (great authority), to certain queries on the state of agriculture propounded by the French Government, which answers are, I find, endorsed by certain land-agents who assume great practical knowledge.

In answer to question 6: "Has the rent of land risen or fallen since the repeal of the Corn Laws? Answer—When a change of tenant has taken place, advantage has often been taken to further increase the rent."

"Query 8. State what are the conditions of letting most in use, and what is the usual terms of the leases? Answer—In the absence of any improvement to the farms and cultivation, the tenants have had nothing to set against the fall in the prices of corn, but the economy of their expenditure. In the ten years previous to 1847, the price of wheat averaged 59.99 s. per qr.; for the ten years since, the price only averaged 54.16 s. The condition of farm lettings vary considerably. They are often insufficiently liberal to encourage good farming, and leases are rarely given. The general occupation of land in England is still on agreements from year to year, although the desire for long leases, say for twenty-one years, on the part of tenants, has increased. The following conditions of letting, which are used by me, are customary, and may be considered as unobjectionable to the tenants, and yet protective of the landlords' interests. Amongst others, not to break up grass land; not to have more than three-fifths of the arable land in corn during one year; not to sell off any hay, roots, straw, or fodder, but to consume the whole upon the farm. The landlord reserves a right of entry for breach of covenant, or on the tenant becoming involved, or absenting himself, &c."

The purport, therefore, of this gentleman's evidence, with regard to the improvement of the resources of the country, may be summed up as follows:—

First, that the price of corn has been progressively decreasing for the last eleven years; and that the farmers have nothing to set against such fall of price—together with the constant increase of rents—but the economy of their expenditure. Further, that the lettings are not sufficiently liberal to encourage good farming; and that leases are rarely given, but mostly held from year to year, although the desire for leases of twenty-one years has increased on the part of farmers.

The writer gives an example of his conditions of letting, which he thinks unobjectionable to the tenants, and sufficiently protective to the landlords, which of course is matter of agreement. But he does not touch at all upon the chief features of a lease which would be sufficiently liberal to induce landlord and tenant to unite the important and equitable principle being involved as to—

Right of the tenant to terminate the lease at certain given periods, although the landlord may be bound for the whole term.

Right of disposing of said lease, after his capital and industry may have worked it into a premium, or tenant-right. The introduction of a species of *ad valorem* rent to meet the average prices of corn from time to time.

Reference in case of dispute or difference, &c.

It is difficult to account for this shyness upon the subject of a fair and equitable principle, rather than adhere to the one-sided antiquated conditions which evidently discourage tenancies for terms of years, and consequently fetter improvement; for, as Mr. Davis says, an increased rent is demanded at each change of tenant.

During the month of November I visited a very extensive farmer in the county of Northumberland, and there met with an impressive corroboration of my principle of refusing to the landlord the reciprocal clause of breaking the lease as demanded by the tenant.

The gentleman had taken a lease for twenty-one years, but containing a clause to determine it at the end of seven years. Whilst demanding this the agent of the landlord insisted as justice that the landlord should possess the same power. The tenant pleaded against such a power being retained, especially as it was contemplated to drain and improve extensively. The agent was imperative; and therefore, rather than lose the farm, the tenant yielded and the clause was inserted.

Improvements of a most extensive nature were immediately put in motion, and of course the value of the farm greatly enhanced. It so happened that a short time before my visit the period of seven years had arrived, and also the death of the proprietor had taken place. So great trepidation was felt that a notice would be given on the part of the landlord; which, however, did not take place, but which might have been induced even by the death of the landlord. Now, I submit that the above fact is conclusive that it is highly unjust for a landlord to reserve the power demanded for the tenant, the object of a long lease being to accumulate increased value by means of the capital and industry of the tenant, without danger of intervention from the landlord.

In acknowledgment of the general principle of tenant right as adjudicated by Justices Coleridge and Erle, in Mousley *v.* Ludlam ("Dixon's Law of the Farm," p. 233), their lordships held that it is not an unreasonable custom that a tenant, who is bound to use and cultivate his farm according to the rules of good husbandry and the custom of the country, should be entitled, on quitting, to charge the landlord with a certain portion of the expense of the necessary drainage done without his consent or knowledge. This was a county-court action to recover £50 from the landlord for having given up to him his farm at his request, with the appurtenances, &c., including work done, manure, soughing tiles, &c. The plaintiff had been a yearly tenant on the condition that he should use the farm in a good and tenantable manner according to the rules of good husbandry and the custom of the country; and the valuation of his tenant-right included charges under each of the above heads. For draining, what had been done during two years, he charged five-sevenths of the cost; and that which had been done one year, with six-sevenths—done without the defendant's consent. No question was raised as to the propriety of the drainage; the defendant merely objected because it had been done without his consent. The jury found him in damages, upon the ground that the drainage was according to the rules of good husbandry. Justice Erle added—"I think that the finding of the jury means that drainage must be according to the rules of good husbandry. If a tenant contracts to hold according to the custom of the country, the usage of the country becomes part of the contract. It would not be an unreasonable contract that the tenant should put in such drainage as was necessary, and that the landlord should pay a portion of the expense. If it be not unreasonable as a contract, I do not see how it is unreasonable as a custom." The appeal by the landlord was dismissed, with costs.

In mining leases the boon of quitting and alienating wholly or in part is accorded to the lessee because of the uncertainty of the various circumstances of the case, otherwise no mining companies would exist; the shares are bought and sold in the public markets, the landlord being satisfied with the bringing in of new capital, and the power reserved of enforcing the conditions of the lease; and it is not fair to assume that the contingencies belonging to the carrying out of a farm lease are not also subject to great, and in many cases fatal, casualties, for neither crops nor markets can be ensured; the storms of the ocean may be ensured against, but not so the land hurricane, the murrain of cattle, the insect that devours the turnips, and many other incidental drawbacks which mar profit and dispirit the adventurer. Many persons are content to farm without leases under certain landlords, because of their high and liberal character; but these are exceptional cases, and ought not to be brought into consideration in dealing with a farm lease, which ought to be dealt with like any other mercantile transaction, viz., to possess a written binding document, which will come forth when one or other of the parties are no more. Another exception may be made in cases of political consideration, but this I exclude from the argument. Without, therefore, some compensating medium during the currency of the lease in case of quitting prematurely, the asking of favours from the landlord is often unsuccessful, and always humiliating; whilst it is also difficult for the landlord to lay down a just and satisfactory principle suitable fer every case.

In Tighes' "Statistical Survey of Kilkenny," he gives the chief clauses of farm leases under Lord Besborough, one of the largest landowners of the county—"Term 31 years certain, or three lives."

One clause runs as follows:—"That it may be lawful for the tenant at any time to sell and alienate in the whole every part of his estate and interest in the premises, so that the landlord may have in his room one single tenant to charge with reserved rent, but provides against subdividing the farm into small holdings."

"In Clare few leases are let without a clause of surrender, especially those of grazing farms, to guard against injury by a fall in the price of cattle; and in consequence of the extraordinary fall in the price, many persons availed themselves of this clause."

The following extract from the *Economist*, of Feb. 12, is much to the point:—

"Dependent tenants and low rents are inseparable evils, injurious alike to landlords, tenants, labourers, husbandry, and the community, which no one can honestly deny, yet we have 19-20ths of English landed property farmed by yearly tenants.

"What is really wanted is, that landlords and farmers should frame their contracts on purely commercial principles. They want no ties—no patronage on the one hand, or subservience on the other. Each party should fairly and honestly seek to do the best he can for his own interest. The one to obtain the highest rent, the other to make such stipulations as will enable him to use the land with the utmost advantage.

"Tenants should be made more independent than at present. Land can only be made profitable by the operations of tenants.

"A while ago Sir W. E. Foulkes, in Norfolk, was presented with his portrait by his tenants, Mr. Coe being spokesman. He congratulated the parties as having descended from a long period as yearly tenants, &c.

"Now, this is the language of dependants — as upper servants, rather than intelligent tradesmen, carrying on an arduous and commercial undertaking. The Norfolk tenants must be either behind their brethren, or they professed their gratitude as a compliment.

"Sir William, in reply, said that he had held the property thirty-seven years, during which period he has had no steward, and has hardly employed an attorney, an officer, or land-surveyor.

"Such feeling may grow up between the landlord and his tenant altogether independent of a good or bad system of management; but in this thirty-seven years, perhaps greater changes have taken place in farming than in any thing else.

"'If you were to farm as your grandfathers did,' said Sir William, 'you could not afford to pay the rents you do.'

"But all this falls short of the exigencies of the times. It places the safety of the tenants on the life and personal character of the landlord. Sir William's successor may be the very opposite character—a game presever, a spendthrift, a political or religious bigot, &c. It is not impossible that he may find, that, under the easy rule of Sir W. Foulkes, the rents are low, and the farming not first rate; that he may raise his rents, and impose stringent regulations, from none of which evils have the yearly tenantry the slightest safeguard. We may be assured, at the present day, that improvement and profit to tenants, and increasing and even sustained rents to landlords, can only be obtained by such change as will secure the capital and profits of tenants. Long and rational leases can alone afford such security."

Having in the previous pages enumerated the difficulties which occur to me as intervening to prevent fair and durable leases between landlord and tenant, as exemplified by the general absence of such throughout many parts of England, I will with great deference submit for the consideration of the club the basis of a lease, calculated to secure to the landlord his proper quota of rent, viz., a fair proportion of the amount value of the produce; whilst it also would defend the tenant from the evil consequences arising from the fall of prices, &c., as hereinbefore enumerated.

The general principle is illustrated in mining leases, where the produce and value are altogether uncertain, viz., that the landlord reserves for himself 1-6th or 1-8th of the value, whether paid in kind or in money value; the same principle applies to tithes in kind. The question, therefore arises, Cannot some similar principle be made applicable to farm leases? Although this is the acknowledged basis of mine rent, it is often found more convenient to commute it for a certain tonnage; for the principle cannot be carried out unless some standard of value can be laid hold of, and this is not practical in case of indirect selling in distant markets.

If a code of this sort can be hit upon, then I humbly submit that it would tend to elevate the position of the tenant above that to which he is driven in the casual and perpetually recurring application to the landlord or his agent for a return of 10 or 15 per cent.

It occurs to me, therefore, that the authentic fact of average prices in the different markets ought to form the grand basis for such a structure as I have taken the liberty to suggest; but professing myself unequal to the task of assigning the details, I leave the matter in the hands of the Club, trusting that they may see it worthy the consideration of a special committee of their body to scrutinize and report.

SUGGESTED BASIS FOR A PERMANENT LEASE.

1. Term, 15 and 20 years to A B, his executors, administrators, and assigns.

2. Power for tenant to quit or alienate the lease at every years (varying according to the scheme of husbandry adopted) by giving six or twelve months' notice in writing, and having complied with all the obligations of the lease: time of quitting to be May.

3. In case of death or otherwise, the representatives of the tenant, before offering the lease for sale, to offer it first to the landlord, at a price, if necessary, to be fixed by disinterested referees, and also to receive from the landlord such compensation, for added value, or unexhausted improvements, as may be fixed by indifferent valuators, the grounds of such claim to be specified in the agreement.

4. The general principles of managing the farm of course to be laid down specifically, and the usual remedies for the landlord reserved.

5. As the rent (corn farm) is assumed to be founded chiefly upon the average price of wheat and oats, the averages to be procured from a certain market upon which the certain rent is first fixed. But in case such averages should be found to fall, then for every per boll reduced value a diminution shall take place in the rental of per cent.—and also that a corresponding ratio should also hold in favour of the landlord. The principle of a corn rent is so little practised, and I may add so little understood, that I am willing to waive that part of the subject, because, if the landlord and tenant agree in preferring a certain annual rent, it does not affect the other material points in the case. The observation of certain intelligent land-agents is, that such clauses as here suggested would negative the very existence of the lease; but that I deny, the principal object being to divest it as much as possible of ruinous variation, for which the capital of the tenant is not prepared, it being specially the business of the corn-merchant to buy at market price, and hold upon the speculation for a rise.

6. Lease to have a general clause of reference to settle disputes which may arise during the currency of the lease.

I shall now conclude with apologizing for presuming to undertake a subject which many will, I doubt not, think foreign to my pursuits; but my object will be gained if I have succeeded in placing the matter in such an intelligent light before the Farmers' Club as to induce a full and free discussion, which will elicit practical opinions and suggestions, which may gradually induce liberal-minded men to disregard antiquated customs, and adopt principles conformable with our enlightened times, and with justice.

The Chairman (Mr. W. Stephenson) hoped there would be a spirited discussion on the subject which Mr. Dunn had so ably introduced. If all the points mentioned could be carried out, the tenants would certainly be placed in a very different position from that which they were now in; but there was another party who was to be consulted, and that was the landlord. He must say that, on the whole, the landlords in this district did what was right; and, if they did not do what was right, they must just be content with inferior tenants.

Mr. Anderson proposed a vote of thanks to Mr. Dunn for his very able paper. It was an important subject, and one which would demand the attention of the members of the club. There was no doubt we had in this neighbourhood a great number of very highly liberal landlords, who went on satisfactorily from year to year with their tenants; but still that did not say that the system of longer leases would not be more desirable, if it could be adopted, by giving the tenant a greater security for his interest in the farm. A landlord might be a very well-disposed and liberal landlord; but his successor, as Mr. Dunn had told them, might come, "who knew not Joseph," and had not known the preceding tenant; and, of course, under these circumstances, the same liberal terms could not be expected.

Mr. Robert Ormston seconded the motion, which was carried by acclamation.

The Discussion of the Paper was then adjourned to Saturday, May 7th, when

Mr. Chrisp, in opening the debate, said, he did not come there that day to oppose a lease. He thought a lease was very desirable, particularly to the tenant, and he believed the greatest difference of opinion would be as to the clauses of the lease. He believed that leases, in general, contained by far too many clauses, and he was of opinion that the opener a lease was kept, the better would it be for both landlord and tenant. A lease was good; but it was very strange that some of the very quotations which Mr. Dunn had cited were from gentlemen who were writers some fifty years ago. He believed that now there were fewer proprietors in the habit of giving leases, and that instead of being prolonged they were now considerably shortened. At the time the leases were so long, a great deal of the buildings, drainings, and various things of that kind were done by the tenant; so that it was then perhaps necessary to give a long lease to allow the tenant an opportunity of being reimbursed. Now, however, since the landlords, in general—because there were some exceptions—had taken the buildings entirely into their own hands, the same necessity did not exist. He thought, in general, that long leases were good; but it appeared that even Mr. Dunn himself thought there was a weakness, else he could not have associated them with so many conditions to guarantee the tenant's interest. He (Mr. Chrisp) decidedly objected to a corn-rent; and he objected to the conditions of the power to allow the tenant to quit at a certain number of years, unless there was a similar power given to the landlord. The fact was, there were fewer leases now granted than there had been. He had seen leases granted to a tenant, where a person found in a few years that he had taken it on a wrong speculation, or there was, perhaps, a sudden depression of the market. He immediately went to the landlord; and what could he do but allow him to quit? Clauses had been mentioned to guard the tenant's interest; but how many instances did they find where, instead of being guarded, they might be overguarded, and guarded to such an extent as to be detrimental to the landlord! and that was one reason why the landlords had objected. With respect to the corn-rate, that was a rate depending on the price of corn upon the general markets of England, to which he objected, on the ground that in a bad year, when there was not so much to sell, the prices in the market might appear much larger, and the consequences would be that the rental would rise without the means of paying it. He was very much inclined, instead of advocating a lease, to allow every man to do what he considered fit and right, according to circumstances, according to the state of the farms, &c.; but to urge a lease, on all occasions, without looking very closely both to tenant and capital, would be most fallacious. With respect to compensation to the tenant, he held in his hand a book of Mr. Caird, who stated that it was nothing but chicanery, and that it benefited neither landlord nor tenant. He thought, therefore, that it would be as well to let matters alone as they were; and he was convinced that landlords would act honourably and liberally to their tenants, whose industry and perseverance were quite sufficient, without attempting to get hold of something which would be directly injurious instead of being apparently beneficial.

Mr. Ferguson (of Bysell) said: With some of the remarks made by Mr. Chrisp I agree, and think Mr. Dunn entitled to our thanks for having brought his paper before us for discussion, as it contains some useful suggestions. In my opinion a lease of a farm for a considerable number of years is decidedly of greater advantage to both landlord and tenant than yearly tenancy; and on this point I entirely agree with Mr. Dunn. That gentleman says that his attention for a long period has been confined to mining business, and that he does not profess to have any practical knowledge of agriculture. I believe, therefore, he would have been more happy among his black diamonds in the bowels of the earth than among the clay on its surface; for, I fear, landlords generally will think his paper on farm leases somewhat one-sided, and therefore it is likely to discourage and put a veto on leases altogether. Mr. Dunn says that it is a great hardship when a tenant dies and leaves a widow and a young family unable to carry on a farm. No doubt there may be occasional hardships in this, but I believe that is but seldom, for there is always about a farm a superior servant able for all the duties, and I have known instances many times where females, with the help of a steady servant, managed the farm in every respect as well as it was before. Mr. Dunn suggests that a tenant ought to have power in his lease to quit the farm at certain periods, I suppose at every four or five years, or, in other words, the landlord should be bound and the tenant free at the end of these terms if he thought proper. In my opinion this would lead to great confusion, abuse, and bad management, and no landlord would be willing to agree to it; nor do I think any respectable tenant would demand such a one-sided agreement, unless indeed he was bound in his lease to do certain permanent improvements at his own expense, such as draining, building, or fencing, and in that case a break in his lease, optional on his part only, might be reasonable and fair; but when no permanent improvements are to be made, such a stipulation in a lease would, in my opinion, be altogether one-sided. It is suggested, also, that tenants should have power to sell their leases at any time they pleased, and to whom they pleased, independent of the proprietor of the farm, provided he declined to take the lease and pay for any improvements which may have been made, after he had got twelve months' notice to that effect. In this way if a landlord did not or could not promptly respond to the demands of the tenant, the farm might be advertised and re-let to new tenants five or six times during the currency of a twenty years' lease, and consequently the proprietor of the farm never would be able to tell who his tenants were, or even get acquainted with them. This would be a state of things which few proprietors, if any, would permit on their estates. The interests of a landlord and tenant are or ought to be identical; but if tenants generally had the power to sublet their farms, or sell their leases to anyone and at any time, irrespective of the proprietor, their interests would then be the very reverse of identical, for the only object of the outgoing tenant would be to get a large premium for his bargain, whereas the object of the landlord always is to get a man with a good agricultural character, and who he believes may become a good neighbour and a good friend, as well as a good farmer. He is planted on the property of the landlord, and it is reasonable and fair that he should, as he always will, select his own tenants. When a tenant, by adverse circumstances over which he has no control, is compelled to resile from his lease, or when a tenant dies, leaving a widow and young family who may not be inclined to continue farming, and that even after considerable sums had been expended in improvements on the farm, then it might be advisable that the lease should give them the power to give up their farms on the understanding that they revert to the landlord, and be re-let by advertisement; and if a higher rent was obtained than formerly, in consequence of such improvements, then the tenant should be entitled to the surplus rent until the end of the lease, providing always that the new tenant fulfilled the conditions of the lease, and regularly paid his rent. Perhaps some such clause as this would meet Mr. Dunn's views, and consequently supersede the necessity of selling the lease or making breaks in it optional on the tenant's part only, to which I believe proprietors generally would object. Mr. Dunn urges the propriety of tenant-right; and no doubt that may be necessary and proper for unexhausted manure, provided the farm is let to another tenant within a few months of the expiration of the term; but, in my opinion, a tenant has a better chance to farm with spirit if the lease can be renewed to him about two years before the expiry of the term, and if so, any tenant-right or allowance for manure would be unnecessary. Mr. Dunn hints at a corn-rent, and believes that mode of fixing the rent preferable to any other method; but I am aware that in several districts where that plan has for a long period been in practice, the landlords as well as tenants are getting tired of it, for the one never could tell what he was to receive, nor the other what he was to pay, and hence the difficulty of regulating the expenses for the year. A bad season, also, always operates severely against a tenant when his rent is paid by the price of grain, for it is often highest when he has little to take to the market. In my opinion, a fixed money rent is decidedly preferable for both landlord and tenant. I do not observe in Mr. Dunn's paper any recommendation as to how the farm is to be managed or cropped. Perhaps he wishes that this should be left open in the lease, so that the tenant may cultivate according to his own fancy. When a landlord has perfect confidence in his tenant, then I think he ought to have liberty to use his own discretion as to management, and be left very much to himself, because such a tenant will not take any advantage, or attempt to plunder the farm. But this liberty, in my opinion, ought to be given irrespective of the lease, which should be carefully drawn, and some mode of cultivation (according to the nature and situation of the farm) carefully specified and entered in the lease, not with the view of cramping an energetic tenant, but for the purpose of preventing the farm from being plundered and the soul taken out of it, in the event of its coming into the hands of a non-professional man. We all know that a lease, write it who may, will never make a bad tenant a good one. It will not make a tenant put only one horse into a loaded cart on a good level road, when he is determined to put two (as we see almost every day) to do the work of one. It will not make him cut his corn low when he is disposed to cut it high, nor will a lease compel a tenant to plough deep when he is disposed to plough shallow. But a lease will do this: it will give perfect security to a tenant, so that he may reap the benefit of his own improvements; and it will also, if properly and carefully drawn, protect the property of the landlord from being plundered and overcropped in the event of the lease, which is heritable, coming into the hands of a non-professional man. Some gentlemen who write leading articles in agricultural papers go quite crazy when they hear that a landlord inserts in his lease a particular mode of management or cropping of a farm, and they severely criticise such an arrangement, and insist that it is unfair to a tenant to be bound to any system of management. They studiously, however, keep out of view altogether that a lease is heritable property, and in this way, by their severe criticism, they succeed in frightening some undignified, silly, weak-minded, vacillating men out of their senses. As I said before, when a landlord has perfect confidence in his tenants, then, in my opinion, he might with propriety allow them full liberty to follow the bent of their own mind as to cropping; but still I think that liberty ought to be given altogether independent of the lease, so that the landlord might have it in his power to protect his property from mismanagement in the event of a change of tenancy taking place. But suppose we take another view of the matter. Suppose a landlord does give such liberty to a clever tenant, and then, some years afterwards, a misunderstanding arises between them; or suppose the landlord dies or sells his property, and his successor is not willing to continue such liberty, and insists on his tenant to cultivate and manage according to the conditions of the lease: in that case the tenant might be put to some inconvenience for a time; but still I do not think he could, in fairness, consider such a demand harsh or severe, because the mode of management was agreed on and specified in the lease; and it was only a favour granted by the landlord that these rules should be departed from. These are the only observations which occur to me in reading Mr. Dunn's paper, which contains some useful suggestions, and for which I think we should offer him our thanks for the views he has propounded.

The Chairman (Mr. G. H. Ramsey) said, if he understood this question aright, it began with Mr. Dunn reading a paper on the "Advantages and Practicability of Farm Leases." Now, he did not know that Mr. Dunn, when he brought forward this subject, contemplated that there should be anything like compulsory letting of land throughout the country; but he (Mr. Dunn) wished to lay down a plan by which, if tenants were inclined to have a lease, there might be something practicable to go upon. He therefore began, in the outset, by saying that they should not have leases, because anything compulsory would be perfectly amiss; but he thought that the present leases, or some of their forms, were many of them so antiquated, that there was a great need of some leases. He then, however, came to what, in his (the chairman's) opinion, was a vital point. It was this, that when men invested capital—no matter in what, whether in land, houses, or ships—the first consideration with him ought to be to invest it safely and properly. Now if a man bought a freehold he gave a high price for it, because he believed he was investing his money on the very best security. Now, if he was right in that proposition, the same principle would come into operation respecting taking a lease. Many men, from circumstances in condition and life, would, he believed, be rather from year to year; and, if he understood this lease question aright, it was to make the leases as fair between landlord and tenant as it was possible to be between man and man. The landlord must have his rights. The property was his; and he had the power of laying down rules and regulations that he would let it on, and upon no other. That was sometimes done, but that was not the equitable way of looking to the matter. The equitable way was to have the conditions such as would entice a man with capital to farm his land properly and well, and give him the highest rent for it. There was no one who could find fault with a landlord for that; but if he went beyond that, it came very hard upon him, and he found that it did not answer his purpose. The landlord in all the leases that he knew of was made perfectly secure; and he thought there was almost no case of which he knew in which the landlord had not always the power of heightening the rent. The landlord had got power over his property; and although they had seen many instances where farmers had cheated their landlords, that they could not help, for it would be always the case, whether they had leases or no leases. According to the evidence before the House of Commons, a lease was a sort of tenant-right; and if it were granted for perhaps twenty-one years, a treaty should be entered into between landlord and tenant at least four years previous to its expiration, with a view to renewing the lease; for no land in this country, he believed, ought to lie in a state of unproductiveness. Now, to secure a man of capital and industry, it seemed to be a great hardship if he were compelled, without any reason whatever, to go on for those twenty-one years; nor did it seem to him fair that the landlord should be bound for twenty-one years. In colliery leases it was different. A colliery lease was of a very speculative description, and in farm-leases there was nothing of that kind, the land being such as at first-sight it was found to be. He thought Mr. Dunn had done wrong in talking about corn-rents. He (the chairman) thought corn-rents had proved themselves to be very fallacious.—[Mr. Dunn: I do not press that.]—If a man had a wheat-farm, and depending almost entirely on wheat, then he might have a fixed medium of exchange; but if he had not—and fortunately for most men in this country they knew better—they had what in the north was called "a mixed husbandry." What, however, Mr. Dunn wished in his paper was to encourage men of capital to put their money into land, as tenants, for which they should have a security as far as it came between landlord and tenant. He believed, generally speaking, that the tenant-right question in the South of England, where it was best understood, was working very favourably indeed. It could hardly be expected that Mr. Dunn, who was not a practical farmer, should have gone into all the minutiæ of the question, but he thought they were certainly greatly indebted to him for having brought so important a subject before them, the issue of which he hoped would be that mutual understanding between landlord and tenant which would result in the happiness and prosperity of both.

Mr. DUNN briefly replied; and in the continuation of the discussion Sir Matthew White Ridley, who was present towards the latter end of the proceedings, along with other gentlemen, took part.

OAT CULTURE.

The oat is, perhaps, the most generally cultivated of all the cereals in northern countries, and the least liable to disease or injury from insects. It is successfully grown throughout a wide range of latitude, enduring almost Siberian cold and tropical heat, and on the poorest sandy soil, the stiffest clay, or the more genial loam.

In Scotland, of which the oat may be considered the staple agricultural product, no soil or district is found either too rich or too poor, too hot or too cold for it. As Messrs. Lawsons tell us, Scotland is, in fact, the country admittedly the best fitted for its growth; and hence its importance there in comparison with other cereals. The estimated number of acres of cultivated land under a rotation of crops in Scotland is 3,500,000; of which 200,000 are under wheat, 190,000 under barley, 1,000,000 under oats, and the remainder under various other crops. The average annual produce of oats in Scotland exceeds 4,000,000 quarters. The average weight per bushel for all Scotland in 1855 was 39¼lbs. In 1856 the highest weight was 44lbs., and the lowest 34lbs. to the bushel. The largest produce per Scotch acre was in Haddington, 45½ bushels; while in Nairn and Arran it was as low as 25 bushels. These figures prove, at all events, what an important grain the oat is to the Scottish agriculturist. The Agricultural Museum of Messrs. P. Lawson and Son, at Edinburgh, comprises nearly seventy varieties of oat; about half of which are grown in Scotland, although not more than a dozen are in general cultivation.

Farmers differ very materially as to the amount of seed necessary—some say three bushels; while the Scotch farmer will sow nearly double this quantity of some varieties. Such excessive seeding, however, is condemned by the more intelligent. Carefully conducted experiments, recorded in the "Transactions of the Highland and Agricultural Society of Scotland," prove that a larger yield may even be obtained by thin sowing, or from two and a-half to three bushels to the acre, than from five bushels to the acre.

Large as our home-production is, our foreign supplies of oats now approximate upon 2,000,000 quarters per annum, and have been gradually increasing for several years. Our largest supplies are derived from the northern states of Europe and the Baltic ports; about 800,000 quarters from Russia, and 500,000 quarters from Sweden and Denmark; Prussia, Hanover, Holland, Belgium, and a few other countries, 130,000 to 140,000 quarters each; and more than £2,000,000 sterling is paid to foreign countries for this single grain, to feed our horses. The consumption in London alone of oats is enormous, to feed the horses which draw our public vehicles, or are kept for pleasure and business purposes. Besides what came to the metropolis by land-carriage, the imports of oats by sea, in 1857, were about 1,700,000 quarters.

Ireland produces a large quantity of oats; there being nearly 2,000,000 acres under cultivation with this grain there. The extent of land devoted to oats in Ireland has, however, been on the decrease for the last six years. Still our imports from the sister kingdom are considerable, although the shipments from Ireland do not now come up to the amount exported in the years previous to 1845, when the exports were about 1,500,000 quarters, or more than the extraneous supply we received from foreign countries, in addition to the home-growth.

The produce of oats in Ireland is about 10,000,000 qrs. yearly; of England, probably, 12,000,000 qrs.; and of Scotland, as we have seen, 4,000,000; making, with the foreign importations, a total consumption in the United Kingdom of 28,000,000 quarters for human food, horse-feeding, seed, &c. Taking the average value last year at 24s. per quarter, this gives an aggregate of £33,600,000 for this one crop alone.

While speaking of value, we may notice the range of prices of oats, which have fluctuated even more than those grains used more extensively for breadstuffs, or for human sustenance. During the last thirty years the lowest average price in any year was 16s. 5d. per quarter in 1850, although in April of that year they were selling at 15s. The highest average price of any year was 28s. 8d. in 1847. In June, 1847, oats sold at 34s. 2d.

Oatmeal is not much used for human food in England, but is chiefly employed for feeding pigs, dogs, &c. Our imports of oatmeal have fluctuated considerably, at one time exceeding 1,000,000 cwt. per annum. The following quinquennial returns mark the progress of the foreign imports:

1835	566,006 tons.
1840	989,500 ,,
1845	1,058,000 ,,
1850	786,000 ,,
1858	371,256 ,,

But, besides this, we also receive a large quantity from Ireland; in many years touching 50,000 tons.

Oats can hardly be said to be largely cultivated in France: they are grown exclusively for the use of horses. There are several varieties cultivated, divided by the French into white and black; by the Flemish into white, yellow, and black. The white oat is most congenial to a soil which is humid, the black to a dry soil. The black oat, in comparison with the white, is represented as worth an eighth more for use; that is, it is more nutritive in the same weight, and its cultivation less exhausting to the soil. The best crops in France, rating 33 pounds to a bushel, according to Mr. H. Coleman, yield about 48 bushels to the acre; but a great portion of the crops give much less, and the average crop is rated at only 16 bushels per acre, which indicates very negligent cultivation. A few years ago there were 7,500,000 acres under culture in France with oats. What the extent of crop is now we have no means of judging; but if this holds good, and the yield be as stated, it would give 15,000,000 quarters as the produce of oats in France.

In Austria, the production of oats in 1851 was 16,446,000 quarters.

Though not occupying the highest rank, the oat crop holds a very important position in American agriculture, and they have been an object of cultivation in the United States from the time of the earliest settlements. Oats have never been used extensively there as an article of food, though some immigrants who were accustomed to them in their native land still continue to use their oatmeal cakes and porridge. The American summers are too warm and dry to produce the heavier kinds in the perfection they are grown in the cooler and moister climate of Great Britain; and the more suitable adaptation of the American soil and climate to the growth of maize, which, though less nutritive, is equally wholesome and palatable, will probably preclude the introduction of oats to any extent there as human food. Their true value is as food for working animals. No other grain will secure (with the exception probably of wheat and barley), pound for pound, more working capacity in animals than sound heavy oats; and it is as a food for draught cattle—horses, mules, and working oxen—that they are generally used. The production of oats throughout the United States in 1840 was about 15,400,000 quarters; in 1850, 18,330,000 quarters; and at the present time it probably exceeds 25,000,000 quarters.

In nearly all our colonies oats are grown to a greater or less extent, but only for local consumption as horse-food; and green fodder and pasturage being plentiful, this grain is not much stored.

THE CROCUS'S SOLILOQUY.

Down in my solitude under the snow,
  Where nothing cheering can reach me;
Here, without light to see how to grow,
  I'll trust to Nature to teach me.

I will not despair, nor be idle, nor frown,
  Though locked in so gloomy a dwelling;
My stems shall run up, and my roots shall run down,
  While the bud in my bosom is swelling.

Soon as the frost will get out of my bed,
  From this cold dungeon to free me,
I will peer up with my little bright head;
  All will be joyful to see me.

Then from my heart shall young petals diverge,
  As rays of the sun from their focus;
I from the darkness of earth will emerge,
  A happy and beautiful crocus.

Gaily arrayed in my yellow and green,
  When to their view I have risen,
Will they not wonder that one so serene
  Came from so dismal a prison?

Many, perhaps, from so simple a flower
  This little lesson may borrow—
Patience to-day, through its gloomiest hour,
  We come out the brighter to-morrow.

AN AMERICAN SHOW FARM; ITS MANAGEMENT AND STOCK.

Behind the range of "Tor Hills" which form the western shore of the Hudson River at Haverstraw Bay lies "Waldberg," the farm of the Hon. Abm. B. Conger, President of the New York State Agricultural Society. The river, beautiful throughout its entire length, is at this point peculiarly attractive. Spreading out to a width of some two miles, at the Palisades it widens with a gradual curve at either shore, until at Sing Sing it forms the "Tappaan Zee," and, above Croton Point, the beautiful Bay of Haverstraw. Mr. Conger's estate has a shore-line of two miles and a half. The whole farm contains 1,400 acres, embracing hill and vale, woods and clearings. The house is a large one, built in the Tudor style, and well arranged within for comfort. This same style of architecture has been applied to the immense range of barns and farm buildings that lie in a cluster, in a sheltered valley at some distance from the family mansion.

The soil of the farm is generally a clay loam, resting upon a red sandstone formation, and having an average depth of ten feet. Here and there, where mountain gullies have met in some basin, deposits of woods-mould and muck have been formed; so that there is in one place a swamp-lot twenty acres in extent. Smaller deposits of the same valuable material are found in other places. The farm is, properly speaking, on the gradual slope of the hills; and this gives a good fall for drainage. The little brooks from this range of hills trend off to the south-west, and unite to form the Hackensack River, into which also the waters of Rockland Lake find an outlet.

The surface of the ground is thickly strewn with boulders, large and small, which are a serious impediment to proper cultivation, and which are available for walls only at great expense in blasting. Should Mr. Conger ever rid his fourteen hundred acres of this difficulty, he will deserve great credit for perseverance and courage. To form his present place, he has purchased thirteen farms, the greater part of which have been skinned for generations by the old Dutch farmers. The houses on these thirteen farms have generally been allowed to stand, for the use of Mr. Conger's men; while the barns have in some cases been enlarged and repaired for the stock, and sometimes torn down. Land throughout the valley sells for 60 to 100 dollars per acre; while exactly opposite, on the other side of the river, people pay as high as two and three *thousand*. Dilapidated barns; straggling moss-grown stone fences; land covered with a thin turf of June-grass, and foul with weeds; or bare fallow, so wet in places that water stands on the surface late in spring—these are the signs of bad farming that one sees all through these old Dutch settlements.

To get things back into decent shape, to tear down the tumbling walls and build better ones, put in several miles of tile drains, clear away the boulders, and gradually work his farm into a thrifty condition, is the self-imposed task of this spirited proprietor. His plan is to plough deep and manure thoroughly with barn-yard and special fertilizers, and plant with corn, following with a root crop the next year, and even the third if necessary, to get rid of weeds and put the soil in good heart and tilth, then, after oats or barley, with clover, to seed down with wheat. He wishes to get into grass enough land to support his herd, devoting the residue to regular grain crops, following the best system of English husbandry, and getting up to crops of forty bushels of wheat, and thirty tons of mangolds. All this is possible, with time and money, and patience; but, looking at the size of the place, the discouragements to be met, and the obstacles to be overcome, we fear he will become faint-hearted before the work is entirely accomplished.

Although Mr. Conger has over two hundred head of cattle, and a large number of horses and sheep, yet his idea is to make the stock-breeding incidental to the improvement of the farm; so that if he finds the breeding unprofitable he can have recourse to general farming. He has set to work like a large farmer, to get good stock by a judicious purchase of parents, keeping always enough of best blood pure to recur to from time to time. Thus, for instance, he might cross other strains with Duchess or Oxford blood, but he would be careful to keep so much pure that he might return to it if he found the qualities of those families did not show beyond two or three generations. Of horses, he aims at breeding roadsters of good size and action, but does not wish to raise racers. He has native, grade and thoroughbred dams, and old Hero as sire to his colts.

The principal barn is composed in part of smaller buildings joined together, and in part of new additions, the whole finished in harmony with a definite plan. In form it is a parallelogram, open on one of its longer sides toward the south. The portion already built gives a range of four hundred feet of stalls on the basement and first floors. These stalls are arranged on either side of a four-foot passage, the whole having a grouted floor, which in the stalls slopes back to a gutter, which has a sufficient fall to carry liquids into the tank under the manure-shed outside. In the calving boxes and loose boxes a floor of slats is laid, according to Mechi's plan, the spaces between the slats varying with the kind of animals that are to occupy the stalls—narrower for sheep, and wider for horned cattle or horses. We noticed a particularly good plan for making the front of the stalls on the passage way. In place of rising perpendicularly to the ceiling, there is, at say four feet from the floor, a slant inward, like a cellar door, for a short distance, and then the partition is again carried up perpendicularly. The upper tiers of three or four boards are omitted, so that a free circulation of air is secured from the windows at either side of the building. The slant in the partition is the feeding door to the stall, and is hung on hinges, and fastened up by a ring to a hook above. The feeder passes through the four-foot passage, and has abundance of room to carry a basket on his shoulder, or a large armful of hay. Inside the stall, and over the manger, a hood comes down so as to prevent an unruly bull from rushing at or goring his keeper when the feeding door is opened.

Mr. Conger, believing that each breed of animals possessed peculiar excellent qualities, has collected shorthorns, North Devons, Ayrshires, and Alderneys upon his place, and proposes to breed from all of them. The herdsman, Thomas H. Patterson, was formerly with Col. Stewart, in Ireland, and had every opportunity to make himself familiar with the management of stock. He practised at Col. Stewart's a plan much in vogue in Ireland for the cure of sterility, which seems to us a barbarous, and, reasoning from analogy, a useless one, viz., the excision of the clitoris. This practice was not known in England until recently; but in the last volume of the Royal

Agricultural Society's *Journal*, Mr. Bowly, a well-known breeder, refers to the Irish custom, and indorses it, stating at the same time that he had practised it with success. Without having had a practical experience in the matter, we incline, on theoretical grounds, to the opinion of Mr. Conger, who has given the subject much attention. He thinks that if success has ever attended a supposed excision of the clitoris, for it never could an actual, it was because the operator punctured the sac of pus which forms at the upper side of the organ; and this would be eminently proper, if the place were cauterized either with the iron, or nitrate of silver. We hope that some person who has had experience in this matter will make it public, for the subject is one of much importance to breeders of fine stock.

As the horse is considered nobler than other animals, and old Hero is the noblest of the Waldberg stud, we will look at him and the other horses before passing on to the horned cattle.

Hero is a lithe-limbed chesnut horse, whose performances on the turf are duly recorded in *The American Turf Register.* He was foaled in 1840, bred by Marion de Vaux, and trained by Colonel Singleton of South Carolina. He is by Bertrand Junior, out of imported Mania by Figaro, g. dam Maniac by Shuttle, g. g. dam Anticipation by Benningborough. Bertrand, Junior, was by Bertrand out of Transport by Virginius, g. dam Nancy Air by Virginian, and old Bertrand was by the famous Sir Archy out of Eliza by imported Bedford. Hero is especially remarkable for his wonderful constitution, evinced by his having won a match, mile heats, in 2 min. 6 sec. and 2 min. 15 sec., carrying 165lbs., when he was 16 years old. His crest, withers, arm, chest, and thighs are all finely developed, the latter being very long and muscular. He lost an eye some years since by some accident in his stable. He looks at present low in flesh, but seems very active, and as vigorous as ever. To us he seems of too light a build to get the compact, square-going roadsters for which Vermont is famous, and that his colts would rather partake of the greyhound form of the thorough-bred racer. We could not avoid noticing in Great Britain, on a recent visit, the great scarcity of good roadsters, and we were led to believe that an infusion of Black Hawk or Morgan blood would be of great service in that country. Their stock has been so bred up for the turf, that it is not easy to find a good square trotter, such as would excite envy on the Bloomingdale Road.

Mr. Conger has 14 brood mares in his stables, some of them very nice animals.

SHORTHORNS.

Suffolk Hero has come into this herd with a reputation for a bad disposition, having on former occasions amused himself by hurting his keepers; but Mr. Conger has had no trouble with him since he has come into his possession. He is a very heavy-bodied animal, though, we think, rather narrow-chested, quality fair, upper line good, of great weight. He was bred by Mr. Morris, but has the Marquis of Carribas blood in his veins, and does not rank as an F. F. V. in the shorthorn family. Messenger, by Tommy Bates (13890), out of Jane, by Chevalier, a Bates bull, is a fine roan, not so large as Suffolk Hero. He has a great many crosses of Duke and Oxford blood in him.

Gwynne's Duke of Oxford was bred by Thorne, and is by far Mr. Conger's best bull. He is by Fordham Duke of Oxford, dam Mistress Gwynne, who was got by Grand Duke, out of Mystery. Fordham Duke of Oxford is now owned by James B. Clay, of Kentucky, and held, we are told, at 5,000 dollars Gwynne's Duke of Oxford was sick at the time of our visit, his symptoms giving reason to suspect a peritoneal inflammation, and stricture of the gall bladder. Mr. Conger is treating him on the Homœopathic system, and felt sanguine of effecting a cure.

There are three bull calves in boxes adjoining the last-mentioned animal, two of the three being white. One, Ellesmere, a Messenger calf, is of Mr. C.'s breeding, now ten months old, and weighs 700 or 800 pounds. Another, Chillon, promises well, and so does Gauntlet, by Duke of Oxford, out of Garland.

Coming to the cows, we notice a number of very high-bred animals that, in their day, have brought famous prices at English sales, but are now barren. Oxford VI. was bred by Bates, got by 2nd Duke of Northumberland, out of Oxford 2nd. Three of her calves sold at the Tortworth sale, in 1853, for 630 guineas, and were resold at Hendon, in 1855, for 500 and 480 guineas.

Boukie, the dam of Bouquet, is very thin, having milked away all her substance.

Iris won two prizes in Scotland, and took the first prize at the United States Society's show at Boston. She has not calved for two years past. She is very heavy, has a broad flat back, but not the signs of a milker, and, unless she gives a calf soon, should be sold to the butcher.

Elgitha, Lady May, Surprise, and Blovzelind, all first-class animals, are sterile. Zoe, by Fifth Duke of York, is the dam of Haines's Marmion, and has brought Conger a heifer calf, Zuleika. Her pedigree was given in the last English Herd-Book as far back as the Waistell and Hubback bulls, but cannot really be traced further than to Mr. Beasley's Jannette. It is a too common custom with some breeders to ennoble their saleable animals by appropriating, wholesale, the necessary pedigree to make them trace back to the Waistell and Hubback bulls—a practice which cannot be too highly reprehended. Elgitha and Surprise were bred by Sir Charles Knightly: the former, sired by Balco, and the latter by Earl of Dublin and Lady May, is, perhaps, one of the best-bred cows Thorne ever had. If they and Oxford Sixth and Iris would give Mr. Conger a nice heifer calf a piece, it would at once give a high character to the Waldberg herd, besides adding very largely to the pecuniary profits of their owner. This unwelcome barrenness is common to very high breeding, and one of the most considerable risks of our public-spirited importers. A man may purchase a very valuable animal at one of the great English sales for an exorbitant price, and, after incurring the large expenses of importation and the risk of accidents and death by the way, find his purchase either a total loss, or perhaps get but one calf, and that a bad colour or constitution. It is not unreasonable, therefore, that a large price should be asked for really fine young stock; for, by a single week of sickness, the breeder may see some of his most valuable animals swept away.

In England, whence all the improved breeds of cattle have come, the fact is well known that where a certain train of blood has been crossed with others, through several generations, there is a constant tendency in the descendants to "breed back"—that is, to take on the form of some undesirable ancestor, instead of following the perfect points of their immediate parents. This tendency is called "atavism," and is a source of great annoyance and pecuniary loss to breeders. The rule holds good that where a particular breed of animals has been kept pure, or if crossed, crossed only with an equally distinct and established family, the young will always take the forms of their sires and dams; and a breeder may invariably expect that his Shorthorn, or Devon or Hereford calf, will be like in form and qualities to its parents. A herd-book should, therefore, be so arranged as to present at a glance the breeding of your animal, so far back that you can see how much of certain well-known strains of blood are combined in it. Mr. Conger thinks the present received plan can be modified for the better, and has adopted the following register of pedigree. For instance, one of his cows is Boukie; her pedigree may be found in the English Herd-Book, vol. iv., p. 278. She was calved in 1849. In Mr. Conger's Stock-Book she is thus noted:

BOUKIE—[English Herd Book, Vol iv., p. 278.]

Red Roan; calved April 25, 1849; bred by Robert Bell, Morboro' Hall, Rainford, England.

Got by 4th Duke of York (10,167*)..............	By 2nd Duke of Oxford (9,046), out of Duchess 51st, by Cleveland Lad (3,407.)	Matchem Cow, by Matchem (2,281 Duchess 1st, by Comet (155) Matchem Cow, by Matchem (2,281)
Dam, Cicely, by Duke of Northumberland (1,940)..	By Belvidere (1,706), out of Duchess 34th, by Belvidere (1,706).	Princess, by Favourite (252) Duchess 1st, by Comet (155) Princess, by Favourite (252)
Granddam, Craggs, by son of 2nd Hubback (2,683)..	By 2nd Hubback (1,423), out of Red Rose 2nd, by His Grace.	American Cow, by Favourite (252) American Cow, by Favourite Duchess 1st, by Comet (155)

Great grandam, Craggs, bought of Mr. Bates, and descended from the stock of Mr. Maynard.

N.B.—American Cow was own sister to R. Colling's Red Rose, by Favourite (252).

* The numbers appended to the names of animals refer to the English Herd Book.

Here we have spread before us, not only the breeding of Boukie herself, but that of her ancestors on both sides as far back as her great grandam. Looking at it, we observe that her sire, 4th Duke of York, has in him two crosses of the Matchem cow by Matchem, and one of the 1st Duchess by Comet; his own dam being the 51st Duchess, and his sire a Duke.

Our readers will notice another improvement in this pedigree, viz., in place of multiplying the letter g to indicate the number of removes back, adding an extra g for each dam's dam—he merely indicates the remove by a numeral affixed to the letter g, as is the custom in algebraic formula to designate the *power* of the unknown quantity.

DEVONS.

The principal Devon bull of this herd is Frank Quartly (205), whom we saw sold at Lewis G. Morris's sale three years ago. He was bred by John Quartly, of Molland, Devon, one of the great improvers of this breed of cattle. His sire was Earl of Exeter (38), grandsire Baronet (6), dam Curly (96), by Favourite (43), and thus back to Quartly's old Curly cows, the best he ever owned. He is now eight years old, but his constitution remains good. His shape is fine, and his quality very fair. His hocks and hips show that he was made for a fast walker, and there is that general appearance of agility about him which characterizes the Devons, than which, as our readers well know, there are no better working oxen.

These are some promising young bull calves, two two-year-olds bred here by Rob Roy, and one out of Princess by Governor.

None of the animals seem to be high in flesh. The reason seems to be that too few turnips and mangolds have been fed, and as the pastures have been poor, no other result could have been expected.

Of the cows, the first we come to is old Droop-horn, who has given Mr. E. G. Faile, of Westchester Co., some of his finest calves, and to her present owner two heifers. Her days of usefulness are, of course, approaching their end, and she must soon be laid up in ordinary.

Princess 3, by Frank Quartly, out of Princess, was bred by L. G. Morris. She is a neat, compact little animal, a fine milker, and of good shape.

Next to her stands a grade heifer, a very deep milker, and marked like a thorough-bred Devon. Her Guenon mark, or escutcheon, is very plain and broad.

Olive, bred by our old friend, the Hon. B. V. French, of Mass., is out of Stickney by Norfolk, whose sire, Bloomfield, was imported by the Massachusetts Society for the Improvement of Agriculture. She has a fine shape, good shoulder-point, full crops, flat back, hips better filled than usual, a tolerable handler, and a creamy lining to her ears, and around her eyes.

Milkmaid (889) is a clean-made creature, with good hips, and a good back.

Zeila, one of Wainwright's breeding, is by Mayboy (71), out of Editha (680). Her shoulder-point and whole fore hand are good, and she will bring working oxen, having size, and of the right build.

Virginia (1116), sired by Duke of Devon (bred by George Turner, of Burton, England), and imported by Mr. Faile, has a great length of quarter, and good loins.

Cleopatra, one of George Turner's breeding, by Louis Napoleon, dam Hawthorn (218), has wide hips, and many other good points about her. She resembles in shape Haines's Dulcinea.

Ginevra, imported by Wainwright, is in calf by Horicon. She is very stocky, much heavier bodied than usual. She handles very well; her hair is fine and rippling, and her shoulders very heavy.

In addition to a number of other cows, there are ten young heifers, more or less promising, but they all look rough, with one or two exceptions. They have got the material in them to make good animals, and would present a much more showy appearance if they had had a liberal allowance of mangolds, or turnips, and grain.

AYRSHIRES.

The bull Eric was imported by Thomas Richardson, Esq., of West Farms, N. Y. He is a red and white, calved in December, 1855. He is said to have marked all his calves very handsomely, and can also impart to them his own fine shape. He is poor in flesh, having been kept on a low diet.

Marmion 2nd, a red and white, bred by Col. Bogert, of Clarkstown, N. Y., was sired by imported Marmion, dam imported Jessie. He is now nine years old. As a five-year-old he took the first prize in his class at the Elmira Show of the New York State Society.

The best of the Ayrshire cows is Red Lady 2nd, the prize cow at Elmira.

Norma, a red cow, was imported by Mr. Richardson, and Jessie 2nd, and her daughter Jessie 3rd, were by a cow and bull imported by Mr. Thom, the sculptor, whose place was at Nanuet, on the Erie Road. The breed of Ayrshires is kept here for milking solely. Mr. Conger thinks the Ayrshires the most profitable breed for small farmers on poor land. If the object be to get milk for market, we quite agree with him; but for getting working cattle we should much prefer the Devons, and for beef Herefords.

ALDERNEYS.

With a view to having a certain proportion of good Jersey cows in his milking stock, Mr. Conger has purchased a good bull, Ivanhoe, a good shaped, smooth animal, larger than the general run of his class; and larger than the bull we saw in Mr. Colt's stables a year ago. We think that in a first-rate dairy one Jersey cow should be kept for each ten of other kinds, for although they are not large milkers, yet what they do give has such a large percentage of cream, that mixed with the other milk it imparts to it a wonderful richness and flavour. Unfortunately our milkmen, instead of adding one Jersey to each ten others, are more in the custom of adding a much larger proportion of liquid from the "iron-tailed cow," or town-pump, doubtless with the view of reducing its richness to the capacity of the weakest digestive organ.

SHEEP.

On the hill sides and mountain pastures of the farm one hundred Southdown sheep find subsistence. The greater part of them have been bred by Mr. Conger himself, some by Thorne, Lowndes, Walsingham, Lugar, and even Jonas Webb himself—nine of the ewes having been imported from his flock by Col. Morris and Mr. J. M. Sherwood. With plenty of land at his disposal, and abundant pens and yard-room, there is no reason why Mr. Conger should not get up a very fine flock of Southdowns.

SWINE.

Three of the best English breeds of swine—Berkshire, Essex, and Suffolk—are represented here by high-bred animals, many of them prize takers, and, so far as we saw, all good of their kind.

Our readers will agree with us that it is not often such a combination of various breeds can be found on a single farm. This gentleman has undertaken to breed pure Shorthorns, Devons, Ayrshires, and Jersey cattle; horses, both thoroughbred and grades; Southdown sheep; and three kinds of swine, besides assumimg the wearisome and discouraging task of bringing up a very large farm. Fortunately he can bring to the development of his schemes the assistance of a princely income, and thus has it in his power to effect results which would be beyond the reach of any ordinary proprietor.—*New York Tribune.*

FOWLER'S STEAM-PLOUGH.

We availed ourselves, at the close of last month, of another invitation from Mr. John Fowler to witness the performance of his "Steam-ploughing Tackle," on the farm belonging to M. T. Bass, Esq., M.P., Napsbury, near St. Alban's, and about two miles from the Park-street Station of the North Western Railway.

The field on which we found the machine at work contained about twenty acres, the soil being a strong loam, approaching to clay, which, after the rain of the preceding night, without being unpleasantly wet, cut like butter under the shares. There were three ploughs attached, each of them turning a furrow of ten inches by six, which they would have executed with ease but for the land having been recently drained. This interfered with the ploughs, which sunk in crossing the loose soil over the drains, causing occasional stoppages, to adjust the elevation of the shares. The land was free from couch and other grasses, but had a good deal of rubbish on the surface, and appeared to us to require the grubber before the ploughs. As it was, Mr. Greig estimated that about seven acres would be performed in the day's work of twelve hours; which would have required—according to the opinion of the farmers present—seven ploughs with three horses each to accomplish. Eight men were in attendance upon the machine, besides the manager.

An adjoining field of twenty acres had been stirred with the grubber, which finished it in two days. On the first day (Thursday) it completed about seven acres, when Mr. Bass offered the engineer a wager of £10 that he would not on the Friday accomplish ten acres. It being stipulated with the men that if they won the bet half the money should go to them, they were put upon their mettle, and finished from twelve to thirteen acres in the given time.

This implement stirred the soil to the depth of six or seven inches, and appeared to us to have executed the work very fairly. The land was in a very foul condition, and it will want *immediate* dry weather to prepare it in any reasonable time for a crop of mangold wurzel, for which we were informed it is destined.

We were much gratified with the performance of the "ploughing-tackle," both as applied to the plough and the scuffler or grubber. The first turned a clean and straight furrow, of greater depth than could have been done with ease by three horses. In the present state of the question of steam-ploughing, we consider Mr. Fowler's apparatus a valuable adjunct to the working implements of the farm; but we still hold to the opinion that an economic application of steam-power to the cultivation and general work of a farm is at present an unattained desideratum, by any of the systems brought forward at the public shows. In our view of the case the error lies in endeavouring to accommodate a new and peculiar power to an ancient land-system, entirely incompatible with it, instead of bringing the land into form to meet the requirements of the power. It is the same error that was committed before the first railway (the Liverpool and Manchester line) was laid down. The machinists of that day attempted to run steam-carriages on the common roads. They soon saw their error, and have rectified it, at a cost of nearly *four hundred millions sterling.* The question of expense is what at present deters the landed interest from following the example; but to this they must eventually come, if steam-agriculture is to be economically adopted. Wherever it is introduced, it must reign alone, and supersede every other power; and the sooner both the machinists and the agriculturists apply themselves to the consideration of the subject, the better.

COLLEGE FOR THE RELIEF OF DECAYED FARMERS, THEIR WIDOWS, AND ORPHANS.

TO THE LANDOWNERS, FARMERS, AND OTHERS CONNECTED WITH BRITISH AGRICULTURE.

Referring to a former communication on this subject, permit me to state that the sum proposed to be raised in the first instance is £50,000. My reason for naming this sum is that it represents a donation of one farthing per acre on the 48,000,000 of acres farmed in Great Britain; and, although I do not suppose that every farmer will give, still, if one-fourth contribute one penny per acre, it will produce £50,000.

Spackman, in his "Occupations of the People," estimates the value of land and tenants' capital at two thousand millions, or twenty-five times as large as the manufacturing interest, which he estimates at 78,000,000. Surely, then, we may anticipate no difficulty in raising such an institution. When we consider that landholders must desire to aid it, and that extensive interests in towns and cities are bound up, as it were, with agricultural welfare and progress, it cannot be utopian to expect a very much larger result than the amount I have named. Our great towns and cities are, as it were, peopled from the agricultural districts, and we may expect much aid from family ties and relationships.

It is intended that the institution shall be managed on the best model of other similar institutions—that candidates shall be elected by the votes of the subscribers, so that each county shall have its fair share, according to the amount of its contributions—and that, after a certain period, candidates shall have been subscribers.

As a great deal may be done for the Charity by farmers amongst their friends, I shall be happy to forward papers for the signature of those who desire to serve the cause.

I am, yours faithfully,
J. J. Mechi,
Tiptree Hall, Kelvedon, Essex. Hon. Sec., pro tem.

All communications may be made to the honorary secretary, 10, Cannon-street, London, E.C.

Remittance to be sent to the account of the Royal Agricultural Benevolent College, Unity Bank, Cannon-street, London, E.C., a receipt for which will be duly forwarded.

[We willingly give insertion to these circulars; but is not the Richmond Institution still in existence, however circumscribed in action? If so, in what relation would the two societies stand to each other?—Editor M. L. E.]

JUSTICE BETWEEN LANDLORD AND TENANT.

Sir,—Mr. Pitt said that no country could be great that was poor in agriculture. This extraordinary calculating legislator was further heard to say, that "corn grown in England is doubly advantageous, because it is produced by English labour and capital, instead of foreign labour and capital. The more you lay out upon the soil, the richer you make your country." The great-minded warrior and statesman Napoleon the First wisely said, "So long as England would grow corn enough for herself, no country or countries could conquer her; but whenever England becomes dependent on foreigners for food, then, by a combination of countries, England might be conquered by starvation," which is reasonable.

How are we situated now with 12,500,000 acres of waste improvable land in Great Britain and Ireland, with a free trade, game laws, and no tenant-right *alias* justice between landlord and tenant, which is one-sided legislation and a great obstruction to agricultural progress? Common sense boldly says, "Woe be to a country when its rulers mean place, power, and pay;" and where there is no will for tenant-right they will find no way. The great arbitrator between emperors, kings, and their dominions—nay, whose mind carries the balance of peace or war between nation and nation—what has the French monarch done for England, and what is he capable of doing with his high disciplined army, and the English fleet to sweep the seas? He would keep all the world at bay; as for any country rising against him would be like a dog baying at the moon. This keen, foresighted monarch is well aware that the neglect of agriculture was the downfall of the Roman empire; and to make France as rich in agriculture as England, he offered high premiums for the best cattle, sheep, and horses under the sun, to show the French farmers what might be bred and done, which was a fine example to all monarchs and governments upon the earth.

Our agricultural implements in husbandry astonish all the world, and set them a thinking what is to follow next. The age of witchcraft is past, the age of discovery we live in, and I hope the age of justice between landlord and tenant will soon arrive. Wise men wonder, good men grieve that we have no tenant-right by law in England, which the *Mark Lane Express* for years has been trying to obtain for the farmers.

Samuel Arnsby.
Millfield, Peterborough, 24th May, 1859.

THE BEST AND CHEAPEST METHOD OF MANURING THE FARM

Sir,—Your columns help us materially in endeavouring to solve one of the great agricultural problems of the day, viz., the cheapest and most efficient method of breaking up and cultivating the soil. There is another point, to my mind almost equally important, on which those columns have certainly not been silent, but which I greatly desire to see still more clearly and forcibly explained; it has reference to the best and cheapest method of manuring the farm. The question is, Ought we to make or to purchase our manures? Can we make farmyard dung at such a price, when compared with guano, rape-dust, or superphosphate, as to render it worth our while to undertake the task? I have been at some pains to ascertain this point, without meeting such complete success as might be wished, chiefly from the difficulty of valuing exactly the excreta of the animals.

I bought in January last four Dutch beasts for £45, forward in flesh, and two years old. They were fed exactly three months (13 weeks) at a cost of exactly £36, without labour, interest of money, or value of litter. The food, which rather increased in quantity as they would bear it, averaged about 9lbs. linseedcake, half a gallon beanmeal, half a gallon crushed foreign barley, half a bushel pulped wurzel or swedes, one bushel chopped hay and straw, with a handful of long hay occasionally, per head per day. They were sold out, one by weight at 5s., another by weight at 4s. 8d., and two in the market, for a gross sum of £75, leaving a loss of £6 on the cost of food and purchase, or, with attendance and shed-rent very moderately reckoned, a loss of £7 10s.

Can any of your readers tell me, clearly and certainly, whether this transaction did involve a loss or not? In other words, is there any formula of reasonable accuracy, whereby I may determine what portion of the £36 spent upon them in food was left behind in their excreta alone, in my sheds and dung-pit?

In one of my drawers is a pamphlet of Mr. Mechi's, in which he endeavours to prove, and does assert, that £1 given to pigs in beans will produce 20s. worth of pork. If true, who then could not make a fortune? But, unluckily, it is not true by a long way. On the table before me lies a pamphlet on guano, by Mr. Nesbit, wherein is written, "It appears to be clear that, unless the oilcake affords a profit by the beef or mutton, a more expensive system (than making dung by cattle) of manuring could not well be pursued." Mr. Mechi's chief object, if I remember right, in more than one publication, is to affirm the principle that success in farming varies directly with the amount of stock kept. On the other hand, we are told by a unanimous resolution of the Botley Farmers' Club, "That where there is not sufficient dung for the wheat (?) crop, it is more profitable to purchase concentrated manures than dung; and that an equal amount of money expended in the purchase of concentrated manures will raise more wheat than the same amount expended in the purchase of oilcake or corn, and converted into dung by feeding cattle." As it stands, the resolution means nothing, and involves a fallacy, as no one ever supposed that £12 worth of oilcake would, after giving £8 or £10 worth of beef, still afford an increase in manure equal to one ton of guano; if it did even half this, the transaction would be largely profitable.

While the bullock feeding above alluded to was going on, I commenced another experiment, by purchasing for the benefit of two and a-half acres of light poor land intended for wurzel, fifty-four two-year-old Kent sheep, and feeding them very liberally in folds upon it. The sheep cost £93, and they consumed in three months cake, maize, beans, barley, and turnips, with hay and straw chaff to the amount of £44 4s., making a total cost, without hurdles and attendance, of £137 4s. I sold them out, chiefly at 5s. 8d. per stone in the wool, for £135; thus sinking £2 4s., besides interest, &c., for the manure obtained. It is very probable that both with the bullocks and the sheep rather better results might have been obtained, especially at the present excellent prices, had the total cost for feeding been spread over a rather longer period of time, but that does not affect my present object, which is to elicit if possible an accurate and trustworthy estimate of the value per week of the actual droppings of a medium-sized bullock and sheep while being liberally fed on cake and corn.

I need hardly occupy your space by pointing out how considerably farming practice, and the public supply of beef and mutton, would vary with, and depend upon, the answer to this question. On many a farm the annual account for artificial manures much exceeds the rent; can, or cannot the whole of that be saved, when meat is at a good price, by the increased manufacture of dung at home? The entire answer to this important question is to be found, by determining the manurial worth of the droppings yielded by a given animal, consuming a known quantity of food, and gaining a known increase in weight or value in a given time. Careful observation, troublesome investigation, and some chemical ability would be required, and such I know has been brought to bear upon this very point; can any of your readers favour me, and with me many others, with the result?

I am, Sir, yours obediently,

Kent.

THE IMPLEMENTS OF TILLAGE.

There are facts known to us leading to the belief that the rotary steam-cultivator will achieve, during the present year, something more like practical success than it has yet exhibited. At Warwick we may expect Mr. Nash's "Romaine" engine, Mr. Ricketts' Chester machine in a new form, and probably one or two novelties in the same line; so that the revolving digger will be likely to run the rope-traction implements rather close. And, as a farmer said the other day, "one of the whirligigs may, after all, beat both Smith's roundabout and Fowler's long-range."

It is a happy circumstance, too, that while the Royal Agricultural Essay on Steam-cultivation is to give us "an account" of the measure of practical success hitherto realized, the Bath and West of England is to teach the clever mechanicians of the day what is "the agricultural object to be aimed at"; to tell them, in fact, what the farmer really requires to be done to his land in any operation which may supplant the present mode of tillage. Such teaching is very much wanted; for any one may see in the Patent Office "blue books" what great ingenuity and large sums of money are being expended in an utterly-wrong direction, owing to inventors being so often working industriously in the dark.

Now, Mr. Chandos Wren Hoskyns has done much towards enlightening the world on the subject of mechanical tillage; and his writings have had great effect, as far as they have been appreciated and understood. It will be well, therefore, to remind our readers of some of the principles which he long ago advanced, and they may have perhaps forgotten.

Up to the year 1849, steam-power had been proposed for ploughing and other traction operations; for rotary ploughing, forking, or scratching; for subsoiling; for levelling land; carrying loads of manure and produce; watering; mowing; for hoe or mattock digging; and perhaps we may say even for *destroying weeds*—as Winrow's invention, patented in 1838, and exhibited at the Oxford meeting of our Agricultural Society, in which a blast of steam, hot-air, or flame is directed upon the ground to kill or consume root-weed, shaken out of the soil by the Norwegian-harrow-like stirrers of the implement. But, hitherto, there had been no copying of *the spade*. In 1849, Mr. Hoskyns published the "Short Inquiry into the History of Agriculture" (read before the Royal Manchester Institution); toward the close of which work he criticizes the clumsiness and inefficiency of the plough upon clay land, and urges inventors to discard all traction-implements from their thoughts, and concentrate their attention on the action of the spade. Hereupon, several digging-machines made their appearance; and, though answering to part of the author's teaching, yet violating the rule laid down in the same pages, that steam-power invariably rejects old-fashioned tools and appliances, and supersedes them by methods of its own. Instead of simply learning from the spade what the process of digging essentially is—that it consists in the two acts of *inverting* and *subdividing*, the purpose being to admit the atmosphere—the mechanical world seem to have taken the advice literally, and aimed at working *the tool itself*, rather than at accomplishing *like results*. Instead of seeking to *invert* and *pulverize in any way best adapted to the power employed*, the inventors, over-ingenious for once, minutely copied the movements of a tool that is but one means (and the best for *hand*-labour) out of many by which these operations may be effected. And hosts of complicated machines for imitating manual operations (rather than simple revolving diggers, making a smooth, clean cut) have kept appearing up to the present time.

A quotation from his advice to inventors having been appended to an engraving of Lord Willoughby D'Eresby's steam-plough in the *Illustration Universel* (the Paris "Illustrated News") by M. St. Germain Le-duc, Mr. Hoskyns wrote an article in 1850, disclaiming all connection with steam "ploughing" at all, and demonstrating that the new power required a *circular* instead of rectilinear motion, and ought to abrade and comminute the soil in a single act, instead of laboriously tearing it up in lumps (as with the plough) for other instruments to operate upon. He proposed a revolving (not rolling) cylindrical rasp, driven by steam-power, at the tail of a slowly-progressing locomotive engine, as the best form of cultivator for cutting up a stratum of soil into a seed-bed; giving that inimitable word-picture of the "revolving Briareus," never to be forgotten by readers of the "Chronicles of a Clay Farm."

In the next year he complained of the delay and silence in which the question was suffered to rest, but deducing hope from the fact that many minds were full of thought about steam-cultivation. He then proceeded to analyze "cultivation" itself into its simplest elements, to infer the readiest pulverizing process from the action of animal claws, and, finally, to warn inventors against the fallacy of a *traction* implement for steam-power, and the "redoubled solecism" of *rolling spades*. In a subsequent letter Mr. Hoskyns excuses his four months' silence on the subject by saying, "I would rather the subject developed itself; as *I am sure it will.* I have a sort of mysterious, indescribable faith in *slowness*. Everything great and true in its time has been hard at the birth. And I have a heavy, troublesome, leaden conviction on my mind, that won't give way, by day or night, that my idea on this same subject of steam-engine agriculture is utterly true." If slowness were the sole qualification indispensable to success, then indeed is our triumph sure; for now, after the lapse of nearly five years since the above propositions aroused the attention of the agricultural world, we have arrived very little closer to a realization of rotary tillage. Powerful inducements to effort have existed long enough. "I am a farmer on a very large scale in Jamaica," writes a correspondent to Mr. Hoskyns, "having four estates cultivated on my own account, and nearly thirty others over which I have control. *There* we put from eight to fourteen oxen to a plough, with four people in attendance; and many good agriculturists of this country who have gone out to manage their own estates, or those of others, have tried in vain to improve on this abomination. We have a most independent peasantry to deal with, who have us completely in their power, and work or not as their fancy takes them, and on their own terms; for Nature is so productive, and land so cheap there, the stimulus to exertion is wanting. You may conceive, then, the *cost* of ploughing and pulverizing an acre of land; and when the idea of doing this by steam has been talked of, I have always said, 'If steam can compete with one man and *a pair* of horses here, what would it do in Jamaica against twelve oxen and four people, *moving* half an acre a day?' for in some parts of the island not a man is seen in the fields after mid-day. I cannot grow the sugarcane *properly* unless I can give the land a *garden* culture. My principal estates are a rather strong clay, on limestone rock, and at various depths. Had I an instrument such as you describe, I could grow three hogsheads of sugar where I now grow *one*. Coals with us are little dearer than in London: we get them nearly freight free." The steam plough of Mr. Fowler, and the steam grubber of Mr. Smith, we believe, have both commenced operations in the West Indies since this was written. In Australia, too, a steam cultivator would be a priceless boon; not so much on account of the oxen employed, which are cheap enough, but because human labour is so enormously dear: and it is deep trenching that is particularly wanted there for vineyards and garden grounds. Many lands upon our globe are waiting, indeed, as patiently as our own English clays, for deep steam-digging to develope their latent power of production. America, we know, is busily trying for steam-power cultivation.

After another interval, we again find Mr. Hoskyns, in a contemporary, satirizing the impotence and prejudice of the agricultural mind in relation to this subject. "Improvements in the existing implements of tillage," he exclaims, "are of course amazingly numerous: a revolution impending over *tillage itself* is the last thing dreamt of. Men look upon the steam engine rather as a piece of concentrated horse-power to be harnessed to the existing horse-worked implements, than as a new agent, whose entry on the scene of action enables us to reconsider the whole philosophy of tillage, to analyze it into its elements, to see *what it is*; what it *has been*, when confined to manual power under the primeval dynasty of the spade and hoe; what it is under the advanced but equally special limitations of animal power, as exhibited in the plough and every other implement of draught; and what it *might be* under the wider sphere of available process which the steam engine presents. * * * It is somewhat strange, too, that when modes of tillage already exist, so totally and specifically different in action from all horse-worked implements, as those both of the spade and its more ancient congener the hoe, the perpendicular and very effective action of these tools, contrasted with implements of draught, has not dimly suggested the possible discovery of *other* means of cultivation as different from all of these as they are from each other. * * * Any one who has ever seen a nutmeg rasped away into fine atoms against the surface of a grater, or sawdust scattered in heaps from timber by the teeth of a circular saw, and can find room in his imaginative faculty for the contemplation of this *mechanical* process, side by side with the *agricultural* fact that a seed-bed is only a layer of comminuted soil a few inches in depth, might surely save the credit of his generation by some more congenial suggestion for the effectuating of tillage by steam-power, than attempting to bind it down to an apprenticeship in which ploughs and harrows, rollers and scufflers, or even the spade, are still to figure as the rude terms of the indenture. * * * There are not wanting heaps of patents and pretensions, crowding in confused succession on the public notice. There are plough-dragging engines—stationary and locomotive, 'ploughshares on circular frames,' 'revolving spades,' the production of would-be discoverers, who never devote one serious hour of study to the simple elements of the problem they undertake, the mechanical act to be accomplished, and the mechanical means necessary to accomplish it; but, taking a plough and a steam engine, or a spade and a steam engine, as the inevitable sire and dam of the fore-determined 'cross,' plunge headlong into the labyrinth of complex and solitary contrivance how to join things which Nature has put asunder. * * * We have called aloud: will no man hear? We have piped often: will no one dance?"

In the same year the publication of "*Talpa*; *or the Chronicles of a Clay Farm*," gave wider circulation to these opinions and deductions; and in this work the author expressly guards himself against an objection which many individuals considered as altogether overthrowing his idea of a steam-driven cylinder. Rasping a fine seed-bed out of the solid would be useful in some cases; but the cohesive properties of clay soil, and the effects of different kinds of weather, render necessary a division of the ground into clods rather than into dust. Howbeit, Mr. Hoskyns, while recommending us to consider the greater influence of manure, &c., upon earth pulverized more minutely than we have been accustomed to see it, suggests the principle of the revolving tiller as applicable for cutting the soil into any pattern of coarseness or fineness we may please—with a rapid motion for the latter, and a slow one for the former quality of work.

The principles have not lain dormant, but, working in many minds, have produced a series of inventions for scratching, rooting-up the ground by rotating screws, &c., &c., with only a few really sensible attempts at performing a reasonable process of tillage by the revolving method. For, alas! as the finest yeast may prove abortive under a mismanaged fermentation, so, in unskilful hands, these writings evolved, instead of a cheering spirit, only sour and bitter disappointment.

This year, however, we trust will either secure the practical success of the two or three rotary cultivators which have already commended themselves in the field, or else inaugurate the triumph of something still newer and more effectual.

DO WE WASTE OUR STRAW?

Sir,—Mr. Mechi has addressed a letter to several newspapers on what he calls the waste of straw in using it as manure, and he invites discussion. With your permission, I shall make a few remarks on the subject; and I certainly do not join in that "shout of laughter" which Mr. Mechi says his suggestion has raised, being too anxious to gain any information by which farming highly-rented land can be made to pay, to laugh at any idea propounded with that intention. First, let us see what Mr. Mechi proposes. At present (at least in the low-lands of Scotland) the whole of the oat and bean straw is consumed by cattle and horses, whilst the straw of wheat and barley, or about two-thirds of the grain crop, is used as litter, and trod down into manure. Mr. Mechi proposes that all the straw be chopped down and given, with cake and turnips, after being steamed, to cattle. Thus three times the present number of cattle would be required on every farm in the kingdom. Some experiments, successful on a small scale, would defeat themselves if very largely extended. Mr. Caird, M.P., published a pamphlet some years ago, showing how much money had been made on a small farm, by growing nothing save wheat and potatoes; and he urged every farmer in the empire to adopt the system. Another theoretical agriculturist suggested that all the produce of a farm, roots and straw, should be sold, and manure bought, because he found the plan succeed in the neighbourhood of a great city. Both seemed to forget that a general adoption of their proposals would at once have destroyed the value of the articles grown. That Mr. Mechi's ten Irish bullocks will be profitably fed according to his plan, may be possible; but a sudden increase in the cattle of the kingdom to the extent of three hundred per cent., would somewhat reduce the price of fat beef; whilst I may ask, where are the lean cattle thus fed to come from?

Mr. Mechi gives no data by which to judge how his cattle pay him; but it is clear they cost him a good deal. The capital required to erect wooden *cages* (for I presume the boxes in which they are fed are such) and the steaming apparatus must be considerable. The cost of attendance must be great. I imagine the manure is daily removed. Where is it put? or *how* is it disposed of? If stored in the open air it will rapidly waste: if put under cover, here is another expense. No doubt rich manure will be made where so much cake is consumed; but while the quality is improved, the loss in quantity will be immense. Mr. Mechi must therefore charge the straw in his estimate of the weekly expense, and his £9 Irish cattle will therefore cost him, according to his own showing, 7s. 1½d. per week each. Mr. Mechi has made a material arithmetical mistake in summing up the prices of the various items, as he cannot mean that 4s. 7½d., the sum of his figures, is "in round numbers 3s. 6d." Now, the whole point of the matter is missed, by Mr. Mechi failing to tell us how soon his £9 cattle ought to be worth say £18. Cattle are in a great measure fed in Scotland on turnips and straw alone. Many farmers who do not choose to buy cattle take in those belonging to others, at rates varying from 3s. 6d. to 5s. Animals costing only £9 would probably not be charged more than 3s. 6d. The profit to the owner of cattle thus fed upon turnips and straw varies of course with the market price of beef; but less than 5s. per week is considered poor payment: 7s. is common, and 10s. not at all uncommon. There is, besides, a large mass of dung ready for spring use, or to be carted out in autumn. So far as I can calculate from the facts stated by Mr. Mechi, no such profit can by any possibility be obtained from his very extravagant mode of feeding. In conclusion, I would draw attention to some of Mr. Mechi's incidental remarks. He says, "his farming friends would stand aghast were he to propose that they should plough-in their feeding cake as manure, though the folly and error of doing so would be only equal to that of ploughing-in straw." Why, do Mr. Mechi and his farming friend, never use that very rape-cake he feeds his cattle with, as manure? or do they not know that thousands of tons are so used?

With regard to straw, Mr. Mechi seems himself rather at sea as to its feeding properties. In one place he tells us "that straw in an unprepared state is not in an available condition for food," and that cattle are "restless and dissatisfied when they are given that straw dry and chopped;" and yet he tells us elsewhere that straw (dry of course) "contains seventy-two per cent. of muscle, fat, and heat-producing substances!" In the first place, cattle like and require dry straw, and if chopped so much the better, to balance the amount of fluid which their root diet conveys to their stomachs; and as to their "not lying down contented when they have fed," I must differ from Mr. Mechi as to the fact. On the other hand, neither Mr. Mechi nor his friend, Mr. Morton, will convince me that straw is such very fat-producing an article. Chemists have proved many useful and wonderful things of late; but when Mr. Mechi quotes Mr. Voelcker as to straw, and when I read, as I did lately in *Blackwood's Magazine*, that water contains more nourishment than porter, I am astonished that cattle are so obstinate and so stupid as not to get fat on a diet of these two excellent things together, straw and water. The Marquis of Tweeddale tried Mr. Mechi's plan of feeding cattle on sparred boards, and was entirely dissatisfied with the results.

I doubt so heavy an animal as an ox being comfortable when forced to stand for ever on hard wood; but with regard to the mess Mr. Mechi provides it, I have not a doubt of its excellence: I object only to its expense. And then the grand question of the manure remains. An ox will not, on Mr. Mechi's plan, produce more manure than is put into him. Let Mr. Mechi then calculate its value, and measure it with that of the wheat and barley straw of the farm, plus the roots and cake that have been eaten over it, and let us strike a balance both as to the cattle and the dung.

I am, Sir, yours, &c.,

May 21, 1859. A Lothian Farmer.

Sir,—I note in your last week's impression a letter with the above heading; and, without any idea of parrying weapons either with the author of it, or with the party attacked—Mr. Mechi—I beg the insertion of a few remarks as a means of provoking discussion, and tending to bring out the facts of the matter. So much as I can remember of Mr. Mechi's letter, to which the "Lothian Farmer" refers, it was certainly wanting in sufficient data as to the cost and returns of his steaming operations to enable any reliable conclusion to be come to as to its profitableness, or otherwise. But the great authority on the subject—Mr. Horsfall, of Burley Hall, Yorkshire—in his able papers in the *Mark-lane Express* and elsewhere, gives a full and clear account; and, so far as I can gather from his papers, his leading object in steaming is to present straw and other cheap foods in such form as to be consumed in larger quantities than they otherwise would if given in an uncooked state to cattle, and by which means a small weight of roots, with a certain admixture of steamed food, produces equally as favourable results as if the cattle had roots *ad libitum*.

In the Highland Agricultural Society's Journal there are statements by Mr. Hope, Fenton Barns, and others, to the effect that, in a lengthened course of feeding, cattle supplied with roots to the extent of 170lbs. to 180lbs. per day, with straw, gain in weight, on an average, 14lbs. per week. Valuing the roots at 8s. 4d. per ton, the cost for roots would be about 4s. 5d. Mr. Horsfall produces as much beef from 60lbs. of roots per day, with a mixture of straw, rapecake, malt-coombs, and bran steamed, and given in the following proportions: rapecake 3lbs., malt-coombs ¾ lb., bran ¾lb., and at a cost, without charging for steaming, of 3s. 6d. per week. The expense of steaming I cannot very clearly make out; but I think he inclines to balance the extra cost of steaming with the superiority of the manure made by the consumption of so much cake, &c., with the small amount of labour involved in feeding on uncooked roots. But, whatever may be the expense of steaming—and which will vary considerably in different localities—it almost seems that the labour occasioned by the system must be less than feeding with such enormous quantities of roots. The haulage and slicing constitute by far the greater part of labour involved in cattle-feeding; and when, by the new system, only about one-third of the roots are required, the cost of attendance cannot be such a serious affair as the Lothian farmer imagines. And, without impugning the statements of Mr. Hope, &c., I may add that I have never seen cattle make such progress on straw and turnips only. The result of the experience I have had is, that if with 4lbs. per day of cake or meal, in addition to what roots they can consume, they gain 14lbs. per week, I consider them to be progressing very favourably; and this, added to the already balance in favour of steaming, shows it to be very considerable. On the other hand, I must add that the little experience I have had with steaming does not at all correspond with Mr. Horsfall's success. Some years ago, when I had the management on the home-farm of a noble lord, he was wishful to try steaming; and though he got steam at an almost nominal cost, yet it was neither so cheap, nor so ingeniously procured as Mr. Mechi's. A pipe was carried from the boiler of a fixed steam-engine through the wall to an adjoining house, where were placed two large wooden boxes filled with material to be acted upon; and, on the man leaving for dinner, he pumped into the boiler some extra water, and added to the fire a few extra pounds of coal, and turned the steam through the pipe to the steaming-boxes. And by the time he returned from dinner the cooking was completed, and the same operation was gone through at night; and, with the engine being at work generally three times during the week, there was always a means of steaming at a very trifling cost. The first difficulty was getting the cattle to eat the steamed mixture—a difficulty Mr. Horsfall says he never has. The result, on the whole, was so unsatisfactory that the attempt was not renewed the following season. In detail, however, we proceeded somewhat different from Mr. Horsfall; and the chief objection was, the cattle never seemed to relish the mixture. The cost was trifling indeed. What is wanted is a thorough ventilation of the subject; and any practical man trying Mr. Horsfall's method, and publishing the result, would confer a boon on his brother-farmers.

W. J. Moscrop.

Forest Farm, Wetherby.

HOW THE BEAN CLIMBS THE POLE.—Professor Brewer, of Washington College, Penn., communicates to the *American Journal of Science and Arts* the result of some experiments made by him on climbing vines—the hop, the Lima bean, and the Morning-glory. He finds that they will climb around a transparent glass pipe just as well as anything else, and that they are most ardent in their embraces when the pole is warmer than the surrounding air. During the day, the vine is attracted towards the light, but at night, and especially on cool nights, it turns to the pole. He learned, also, that the colour of the pole makes no difference; the caressing instinct of the vine has no prejudice against any shade. The element of constancy is very largely developed, the vine, after it has reached its pole, showing a much stronger tendency to wind around it than it did before to reach it.

A PRACTICAL PROBLEM.

Sir,—If you will insert the following few remarks in your next number you will oblige.

In the able paper read by Mr. Bond, at the Ipswich Farmers' Club upon the "Profession of Agriculture, &c." there is certainly very much which every farmer could endorse (more especially with reference to the diminutive magnitude of the pecuniary realizations, which he deplores in common with all *thorough-bred* sons of the soil); still there is one idea which it is difficult—to me at least—to reconcile *in toto* with other preconceived notions, and that is in connection with the malt-tax and the labouring man. He says—"To me it is perfectly clear that the poor man, with his difficult practical problem to solve—with his wife, children, and himself to be maintained upon his 8s. or 10s. a week—beer is a necessary comfort, rather than a superfluous luxury."

Now, to me there appear to be other "practical problems" arising out of this subject, which I can no more solve than I could the "labourer's problem," of how to maintain self, wife, and family upon 8s. per week? I have been a good deal puzzled with old Euclid's problems, propositions, &c., before now, but never met with a more decided poser than this would prove.

The first "problem" that presents itself to me—and which I submit to Mr. Bond, not being able satisfactorily to answer it myself—is, if the beer be such a "necessary comfort," in what tangible form do you propose to exhibit its salutary effects to those who are not sufficiently endowed with the "talent of observation" to discover them for themselves?

Secondly, I would ask for a definition of the term "necessary comfort," in connection with 8s. to 10s. per week?

Thirdly, Is beer a more nutritious and less expensive article of diet than solid food, that a repeal of the malt-tax should be so ardently desired?

Fourthly, If beer be more nutritious than solid food, wherein does its real nourishing property consist?

These are a few of the practical problems that present themselves intuitively, and which we should very much like to have satisfactorily solved.

I may just mention here that I do not exactly see how the beer can be so much cheaper than solid food; for we are told that an infusion of malt and hops in the proportion of 60 gallons of water to 4 bushels of malt and 4lbs. of hops will make a good beer; in round numbers it will require about 14 stone of barley to produce 4 bushels of malt. Now we might make a few *easy examples* in arithmetic out of this, to be placed alongside the "practical problems." For instance—

1. What will 60 gallons of beer cost at 2d. per pint?—Answer, £4.

2. What will a quantity of good wheaten flour, equal in weight to the barley in the beer (14 stone) cost at 2s. 6d. per stone?—Answer, £1 15s.

3. But supposing that, instead of having all this quantity of barley in the 60 gallons of water (as you would do if it were ground and stirred in as we mix the dinner for a pig), you only get 20 per cent. of it soluble, and that one-third of this is sugar, which will be converted into alcohol in the process of fermentation, what have you left? Answer: 26.13lbs.

4. If 26.13lbs. of extract of barley cost £4, and this be considered to be as nutritious as wheaten flour at 2s. 6d. per stone, what will the extract cost per stone, and what is the relative proportion between them? Answer: £2 2s. 10½d. per stone.

The relative proportion as 1 to 17.15.

These and many other interesting little sums might be worked out with comparative ease by an arithmetician; but certainly these figures are no very satisfactory clue to the whereabouts of that superabundance of real strengthening constituents which the beer is said to contain over and above what is possessed by the flour. If it really does possess these strengthening properties, we think that the brewers must have found what the alchemists long sought, the philosopher's stone; which does not, however, turn every thing into gold, but into nutritious matter.

I am not quite clear either upon that part of the worthy lecturer's subject in which he dubs beer as "the poor man's especial beverage." In the agricultural districts it may be; but what of the thousands in our large towns and cities—or have they no poor? Down what class of throats does the 7¼ million gallons of gin, manufactured in London alone, pass ere it gets into the town sewer? It appears, from all the information that we can gather upon the subject, that although beer is the "especial beverage" of the agricultural labourer, yet gin must be emphatically called the *drink of the people*. Therefore, reasoning from analogy, if the malt-tax is to be abolished for the benefit of the one, certainly the excise officer must also be banished for the benefit of the other. And we would bid those true friends of the people "God speed" in their labour of love, who are endeavouring to establish beet-root distilleries in this country; not, indeed, for their own pecuniary advantage, but for the public weal; thinking, as they do, that by introducing a cheaper spirit they shall thereby check that *evil spirit* of "nefarious adulteration" for which the spirit duty "offers a premium," in the same way that the malt-tax "offers its premium" for the same delectable commodity.

We trust that the spirit of philanthropy just kindled will effect much lasting good. Perhaps when we get beer and spirits for half what they now cost we shall not have so much drunkenness amongst us. Perhaps crime, too, will diminish, from the fact that individuals will be able to purchase what they want with the money they have left, after procuring the quantity of drink that they *really require*, instead of *prizing* it as heretofore—perhaps so. I am, Sir, yours, &c.,

Thos. Rose, jun.

DEATH OF A NORFOLK WORTHY.—Many of our readers will learn with regret the death of Mr. Richard England, of Binham Priory, Norfolk. Mr. England was a worthy scion of the country whose name he bore, and at public dinners in Norfolk frequently responded to the toast of the "Yeomanry of the country," in terse and appropriate terms. A few weeks since, Mr. England performed the melancholy duty of following to the grave the remains of his lamented friend Mr. Henry Overman, of Weasenham; and now he is himself numbered with the dead. His kindly face and portly person will be sadly missed from Norfolk gatherings.—*Norwich Herald.*

THE MALT TAX.

The course of time makes but few changes in the traits of national character. The historian Tacitus in those wonderful word-pictures of his, which place so vividly before the reader the manners and customs of men as well as the sequence of events, draws with a masterly hand those distinguishing features which in nations as in individuals separate one from another.

In the Gauls of his day we readily recognise the French of our own time; and in his portrait of the Germans (our ancestors) we are reminded of much that still belongs to the English character; viz., in their love of eating and drinking, but regarding quantity rather than quality; in calamity their tears soon dried, but their sorrow lasting; in their love of liberty; in their love of fighting; in their abhorrence of anything like deceit or meanness; in their respect for women—in all this we find a great resemblance to the English type.

But there is another feature in our Anglo-Saxon physiognomy which we have not named. Here it is, in the words of a well-known writer—

"Englishmen are proverbially slow in changing habitual ideas and modes of action; they love custom and hate novelty; and all the national characteristics are found intensified in the British farmer."

The truth of this has long been acknowledged; and not unwisely when we wish to depict the national type do we produce on the canvass the well-known figure, the stout farmer John Bull.

But our staunch conservatism as farmers, while it makes us uphold and reverence our glorious institutions, sometimes prevents us from taking active steps in removing a long-established nuisance, although we acknowledge that such removal would be much to our benefit.

It is of one of these nuisances we would speak—the malt-tax. It has been attacked in the very excellent paper on "Agriculture practically and politically considered," read by Mr. Bond, of Kentwell, before the Ipswich Farmers' Club. He describes this tax as being hurtful and injurious to the poor man, the farmer, the landlord, and the nation at large. "To the hard-working man," says Mr. Bond, "beer is a necessary comfort rather than a superfluous luxury.... The poor man has comforts few and far between; and I say, tax wealth, tax competency, tax the luxuries of the great and the luxuries of the middle classes; but in fairness and honesty spare the comforts and necessaries of the poor, for if we cannot alleviate their lot, let us scorn to increase artificially their sufferings."

We quite agree with the lecturer in his assertion that drunkenness would decrease if the tax were removed. A labouring man would not have the same temptation to get intoxicated at the beer-shop, where every mouthful of the deleteriously-adulterated liquor he swallows increases his thirst, if he could obtain his mug of home-brewed at his own cottage.

Who can wonder that the hard-working man, with his scanty fare, who tastes meat perhaps once a week (and all who know the state of our agricultural poor will know that this is no suppositious case) should sometimes feel a craving after artificial stimulant?

We all know the bad effects of the beer-house system. It has been pointed out in Mr. Fisher Hobbs' pamphlet, "Landlord, Tenant, and Labourer." We all know it is desirable that such a system should cease; but how is it to be removed? Not, O ye advocates of total abstinence! by passing a Maine-liquor-law in England; which would be impracticable. Not by setting out to convert labouring men to teetotal principles—an effort not to be laughed at; but which, while it converts tens, leaves the millions in their misery: something more speedy is required. Not by putting down beer-houses by Act of Parliament: an affair of some difficulty, which would interfere in vested and private property, and which would appear unjust to the poor while the drinking resorts of the higher classes remained open. But by repealing the malt-tax; by making beer cheap; by allowing the labourer to enjoy the wholesome beverage at his own fireside, surrounded by his children. Does any one suppose that making beer cheap would increase intoxication? We confidently affirm it would not. Does a man only get drunk when he can afford to do so? When a man is drinking, does he calculate how much it will cost him? The sad experience of thousands will testify that has nothing to do with it. The man who earns the least, the man who has the greatest number of children, will often spend most money in drink.

The desire for stimulant of some sort (Professor Johnston in his popular work, "The Chemistry of Common Life," assures us) is not peculiar to any country or any race of men; for, travel where we will, whether we traverse the volcanic plains of Mexico or climb the Cordilleras of the Andes, whether we visit the islands of the South Seas or sail up the mighty rivers of China, whether we visit the kraal of the African or the goat-skin tents of the Bedouin; we shall still find (he tells us) that every nation has its own particular beverage, intoxicating, narcotic, or sedative, which shows the universal feeling and practice of mankind to be in favour of stimulants.

No one but he who has lived in the country can know the strong liking an English labourer has for beer, as one of themselves remarked the other day, "We fellows will work longer for a pint of beer than for sixpence." Nearly every farmer knows this by experience, and some have tried the plan (and found it pay them to do so) of giving part wages in beer; this way has its objections, which need not here be pointed out; but how much better it would be that a labourer should brew at home, have his modest cask of beer at the cottage, and carry his daily bottle to the field! We firmly believe that a labourer has as much control over his passions and appetites as any other man; give him the means of temperate enjoyment, and he will not abuse them. But the malt tax is also injurious to the farmer; I need not point out how injurious it is, for we all know where our own shoe pinches. As Mr. Bond says, we believe that "it curtails the growth of barley, lessens its consumption, lessens its price, and is a positive detriment to the profits of farming."

The malt tax is injurious to the public at large, because it encourages the adulteration of beer by compounds and drugs (which, from their brutalizing effects, may well deserve the last name of the catalogue into which they have been wittily divided, "table, able, lamentable, and classes of beer damnable"): "it drives men to the beer-shop, and, as a natural consequence, adds to the crime and pauperism of the kingdom; these, in their turn, add to the public, county, and poor's rates generally."

It may be said by some, "We agree that the malt tax is injurious to the best interests of the community, and that it weighs heavily on the agriculturists; but the present is no time to ask for the repeal of a tax of five million pounds." We maintain, however, that expediency often tempts us to do wrong; and if this tax is unjust and injurious, which we hold proven, that there are many other ways in which the money might be raised without pressing unduly on any class of the community. But if any ask, What is to be done? we answer that each man who feels this tax oppressive can do something. Mr. Bond justly remarks, "If we suppose that any Government can remove grievances while we, the parties aggrieved, remain in Stoical indifference, or simply over a quiet pipe complain that our legislative friends don't befriend us—I say if this is the summit of our efforts, if this is the acmè of our exertions, if these are the fruits of our deep convictions, if a passive inaction governs us—no matter how just our cause, no matter how great the wrong perpetrated, if we are too indifferent to attend to our own interests—no Ministry in power, nor the public at large, can or will befriend us." The lecturer goes on eloquently to show that farmers must *act*, working well themselves, and prevailing on their representatives to work for them.

We would offer respectfully one practical suggestion as a corollary to the above. Why should not a petition be got up through the kingdom for the abolition of the malt tax? Let the farmers' clubs, which so well represent the intelligence and thought of the agricultural community—let each club in its own district take the initiative in obtaining signatures, and the united petition of the agriculturists of England will prove to Parliament and people that the farmers of England know their rights, and are resolved to obtain them.

THE STRENGTH OF FOOD FOR CATTLE AND SHEEP, WITHOUT THE AID OF CHEMISTRY.

Sir,—Two years back, I travelled by rail from London to Wolverton with a very intelligent gentleman, who said that he had a shrewd experimental friend who was a great winter-feeder of cattle and sheep; and that he had proved to his satisfaction, by weighing the sheep alive, that 14lb. of the best oilcake was equal in strength to a peck of beans. A stone of cracked barley was more than equal to a stone of oilcake with common turnips. In his opinion, a pound of tares per day, upon white turnips, was stronger than a pint of any other corn. Beans and peas were very fattening, with turnips. Oats were fattening, upon clover or grass. Linseed oil proved fattening, with something binding. If memory serves me right, the gentleman said his friend had fed some North Devon worked oxen upon linseed oil and barley-straw, cut into chaff, and mixed with a pint of oil per day. The said oxen were not only fat withoutside, but full of fat within. Feeding oxen fat upon barley-straw and a little linseed oil is of vast interest and importance, not only to the feeder, but the breeder. The stranger agreed with me that there is yet but little known, compared with what is yet to be known; which our new implements in husbandry prove and show.

To keep pace with the times, it is reasonable, expedient, and profitable that every farmer's son should be taught agricultural chemistry, as being part of their business, or they will be greatly imposed upon by adulterations. In my opinion, in the year 1900 it will be as great a rarity to find a British farmer who does not understand or know the value of chemistry, as it is now to meet with a farmer who does, and that the time is not far distant when a farmer not knowing chemistry may justly be compared to a pump without a handle.

The antediluvian system of farming is nearly worn out. The *Farmer's Magazine* proves my assertion, and that the wheels of Nature and of Time were never made to stand still or roll backward.

SAMUEL ARNSBY.

Millfield, Peterborough.

THE ARISTOCRACY OF ENGLAND, AND DURHAM CATTLE.

Sir,—The high and far-famed Durham cattle have not only proved themselves useful and ornamental, but the most profitable cattle of any sort or kind upon the face of the earth, and will soon find their way to all parts of the inhabited globe. The aristocracy of England, breeding them for profit as well as being ornamental upon their domains, will of course lead the foreign nobility to follow the example, profit being preeminent over fashion and mania, but when combined you cannot easily predict what an immense price the Durham cattle may advance to. Up to this time bulls have made 1,000 gs. and 1,200 gs. each.

The real Old English gentleman, I mean Sir Charles Knightley, has done wonders for the Durhams, by exhibiting droves of that breed, bred by himself, in Smithfield great Christmas market, which struck thousands of spectators, British and foreign, with admiration and amazement to see such handsome frames, fine bone, and lively countenances, with a quality of flesh second to none. The said nobleman, Sir Charles, did not aim at gigantic size, but at fine, firm, silky-grained, marbled flesh, which he obtained equal to the best Scots and Devons, and proved to be so, in the metropolis, when dissected.

The useful, persevering, forethoughtful, keen-sighted Louis Napoleon is doing wonders for France, by offering high premiums for the best cattle, sheep, &c., &c., that can be found in any clime, which is a fine example to all monarchs upon the globe. We read of Babylonian monarchs and ancient Persian kings awarding with their own hand premiums to the best cultivators of the soil, &c., &c.; but we do not read of ancient kings offering high premiums for cattle and sheep brought from all zones. The *Mark Lane Express* and the *Farmer's Magazine* have done justice to the Durhams, by proving that they are second to none for profit, and stating where the best herds of them are to be found.

S. A.

APIARIAN SOCIETY.—The first meeting of this newly-formed society recently took place at the rooms of the Entomological Society, Bedford-row; the Rev. S. Waud, M.A., of Rettenden, Essex, in the chair. The report stated than an experimental apiary had been established, and placed under the care of the Secretary, at Muswell Hill, to which the public were admitted by members' orders. Mr. Shirley Hibberd stated that numerous donations had been received for the library, and that it was the intention of the committee to institute lectures on improved systems of bee-keeping, and also to offer prizes to cottagers for the best examples of bee management. Mr. Tegetmeier described an entirely novel method of bee-keeping adopted in America, which the society was about to test at its apiary. Specimens of artificial comb, and various models, apparatus, &c., were exhibited.

THE BATH AND WEST OF ENGLAND SOCIETY.

MEETING AT BARNSTAPLE.

The West of England Society holds its Meeting this year under somewhat altered circumstances. It has travelled out of the line and rule of the conditions and attractions which have so far marked the signally successful revival of its operations. A laudable ambition has been evinced to do something more, and to extend into other branches the useful influence of the Association. At the same time a too ready willingness has been shown to qualify the force and weight of its proceedings as a purely, or at least an essentially, agricultural authority. It would almost appear, indeed, that this new feature were intended to compensate for any diminution in the interest attached to an old one. The public certainly read it in this wise. The marquees devoted to the exhibition of Arts and Manufactures were nearly always inconveniently crowded, while the long range of implement stands never yet commanded so scanty nor so listless a succession of visitors. We must by no means be understood as merely writing up to our own views here. We are, the rather, only recording a simple fact. From the inquiries we made from time to time, we believe the great body of these exhibitors never before had so bad a week for business at a West of England Show. Never even were the mere cross questions of the curious so few and far between; and this in the face of "as fine a collection of implements" as one of their own number, Mr. Shuttleworth, of Lincoln, had ever beheld. There may be many reasons for this apathy. Barnstaple may be an out-of-the-way place. It may be more of a grass than an arable country, with small fields and small farmers. Such people may be not supposed to care much about the best machinery, or of what use it is capable. And so they trudge off at once with their wives to admire the treasures from the South Kensington Museum, the water-colour sketches of their own beautiful neighbourhood, or the tempting knicknacks so charmingly displayed upon Mr. Mechi's stand. This may be the reason. Or, perhaps, they just take the manufacturers at their word. The construction of agricultural machinery is now arrived at such a pitch of perfection that it is hardly worth making any more trouble about such a matter. Everything is of the best, and everybody has got the best, as he is of course sure to tell you. When we want anything, we will send for it. In the meanwhile let us go and look at the Spangled Hamburghs, or walk through Mr. Acland's evergreen avenue, or buy a set of decanters, or a magic strop. We are open to correction. We are told one or two houses did a good trade. But we directly ask the exhibitors themselves whether, in all their experience, the implement department of a great agricultural meeting was ever attended with such little general interest and encouragement

Still, it is not just to dwell thus early on the weak place of an otherwise most successful gathering. It must not be assumed that Barnstaple is really too out-of-the-way to bring people together. It must not be thought, either, despite its small inclosures and so on, that it has not in the district some of the material for making up a good show. On the contrary, the Barnstaple Meeting is the best the West of England has ever yet had. In that most direct test of sympathy and support, it is by some hundreds of pounds better than any of the previous anniversaries—Bath, Plymouth, or Newton. And, again, in perhaps the most important feature of a West of England entry, this has never been equalled. One might even extend the limit, and say, with the judges and others, that never before had so good a lot of Devon cattle been collected together. Such, however, was to have been expected. It was the very home of the sort, and it became something like a point of honour to prove what they really were. As a consequence, we had Mr. Quartly, Mr. George Turner, the Davys, the Mersons, Mr. Bodley, Mr. Hole, Mr. Buller, and other North Devon men, all in the field. These, moreover, were headed by an illustrious exhibitor, who came ready to fight them with their own weapons. His Royal Highness the Prince Consort, long known for his partiality for the Devons, made two entries of them for this meeting, and even in so strong a show succeeded in taking two first prizes. Had he been only able to find a thorough match for one of his pair of heifers, such a couple would have had, unquestionably, the call of everything on the ground. The pick of the two—Lovelia—is well worthy of her name, and sure to be heard of again. She had all that beauty of head and neatness of form that no others ever show like the Devons. As it was, even tested on her own individual merits, the Prince's only succumbed to one other heifer—the first prize in the class of a year older. But after all, they are very much of a family. Both of His Royal Highness', as well as his prize two-year-old bull, although of his own breeding, are by The Zouave—a bull purchased of Mr. George Turner, from whose herd Colonel Hood is still continually replenishing that at the Royal Farm. The Prince's success was at once telegraphed to Windsor—a piece of intelligence in significant contrast to those despatches George IV. once awaited so anxiously, when a messenger galloped from the course at Ascot to the Castle with the result of each race as it was decided!

Notwithstanding that a special prize was offered for the best of the bulls, the cow classes were altogether superior. The dozen three-year-old heifers, amongst which Mr. Turner stood first and Mr. Quartly second, were all very deservedly commended by the judges; who, clearly went to purity, and blood-like expression for preference. In the aged cows they would scarcely have seemed to reason the same way; and the award was much canvassed by the local men, who considered that an unnoticed cow of Mr. Merson's, as well as another Mr. Quartly's, should not have been thus entirely passed over. It is only right to say that the awards were made under great difficulties. It rained hard from the hour the judges entered on their duties, on Tuesday afternoon, until it was time to give over, and we believe it was quite impossible to have many of the animals out. Some sort of similar protest was entered as to the best of the aged bulls, many going for Lord Portman's Palmerston. It certainly struck us, however, that Mr. Bodley's had all the best of it in the leading points of what a male animal should be. Palmerston, though not distinguished himself, had yet the credit of being the sire of Mr. Turner's very perfect heifer, as also of the best Devon bull of the other two classes. This was Mr. Merson's Prince of Wales, the best yearling at Cardiff last season, and that we then spoke of as the pride of his entry—fine in quality, thorough-bred in appearance, and a very model for the mould in form. He has by no means lost any of his good looks, but is still beautifully developing, without a symptom of coarseness or loss of character. With gentlemen carefully selected *not* from either of the two counties in which the Devon more particularly flourishes, it was thought either variety would have fair play—the pretty *petite* home-bred and reared, or the bigger, and, as many will say, the more useful beast when transplanted to the fat lands of Somerset. The prize-list will show that the exhibitors from the latter district had a very fair share of success; and we were really glad to see it. But it struck us there was not that same very apparent contrast between the two kinds we have occasionally noticed. And as the North Devons never showed their own "sign" more decisively, one might be led to suppose the other was fining back to him. In a word, there was not a discreditable animal in the whole entry—not one could the most fastidious have drafted away without damaging the effect of those long victorious red lines Mr. Spooner so happily referred to, in his response for "The Judges." They withstood not only the general review, but equally well the careful call-over of every number on the roll.

The strength of the stock show centred in the natives, just as at Cardiff last year it did in the Herefords. There was an unusually short entry of the latter here, but with some very good animals amongst them. The prize bull, for instance, Mr. Price's Goldfinder the Second, is very well known: the first at Chester last year, and the second of his class at Chelmsford. He was also the sire of Mr. Perry's prize cow, as well as of Mr. Price's young bull and pair of heifers. In fact, all the Herefords sent were of high character, and mostly showing that improvement of late years so susceptible. Instead of the upstanding large-framed beast so well known of yore, a judicious cross of the grey with the red brings a more compact and much neater-looking sort, which have the further and now indispensable recommendation of coming early to maturity. The old-fashioned Hereford took a long time to furnish. Goldfinder has quite this modern look, and Mr. Duckham, the editor of the "Hereford Herd Book," exhibited a young bull, bred by Lord Berwick, that on the same showing really merited some public mark of approval. But the judges of the Devons and Herefords were very chary in their commendations, and, with the exception of one whole class of the former, distinguished nothing beyond the prize animals.

By comparison the Shorthorns were also not in great numerical force. Mr. Stratton, however, scarcely had it quite so much his own way with them as has been customary at these meetings. The opposition he had to encounter was far more formidable, and included some "terribly high-bred cattle." Mr. Holland's prize bull, to begin with, has an indisputable pedigree, but he has not improved of late. The "Duke of Cambridge" is, in fact, but a plain-looking animal, with an indifferent head, and by no means a perfect form. As with his famous relative at Chester, his quality must have been tended for more than his symmetry to secure for him the pride of place. But it was in the cow classes, once more, that the strength of the entry was to be found, and the Hinton herd to be tried. Amongst the aged cows they well held their own, Matchless 4th being about the best-looking Shorthorn on the ground. She was second last year at Cardiff to a half-sister of her own; many—her owner amongst them—fancying she should have been first. Lady Pigot, who has been gradually coming on at these meetings, was second to Matchless with a cow bought of her old neighbour and Mentor, Mr. Jonas Webb. In the pairs of heifers her ladyship went to the fore with far more decision. One of the match-pair is direct from Warlaby, while the other turned out to be the pick of Mr. Wetherell's herd—Stanley Rose, for which three hundred guineas were given at the Aldbrough sale about a month since. At many meetings these would have been the lions of the day, but it was curious to mark how local taste and custom would tell. While the Prince's couple of Devons had a continual throng of admirers three or four deep around them, there were few, we believe, who knew that so famous a heifer as her ladyship's was in the show. In truth, the Durhams were not becomingly appreciated here; and, of course, most of the exhibitors of them were from a distance. The first prize young bull, indeed, was all the way from Ireland, where he was purchased last season by his present owner. He took, perhaps, more than anything in this division; and there was a good deal of nibbling for him, of course, at a strong rise on the figure for which Mr. Browne brought him over the channel. But Botanist is allowed to have improved amazingly on the Wiltshire pastures, where the Durhams always appear to thrive.

The long-wools had all the attraction of the sheep show. The entry of Leicesters was unprecedentedly good, with Mr. George Turner in as much force as with the Devons. His success, too, was not confined to his own animals, his second prize aged ram being the sire of Mr. Potter's first prize yearling. It would have been imagined that such a lead must have ensured a good sale, but the Barton rams did not go off very readily when put up on the Thursday. We rather question whether the bustle of the show time is really conducive to a good attendance of buyers or bidders. People have so much more to do and see, and certainly during the time we were present Mr. Turner's salesman did not collect much of an audience. On the other hand, Mr. Davy of Flitton, in using the same means, disposed of some of his Devon cows at very satisfactory prices. But after all, there is nothing to be less depended on than the response to the challenge of an auctioneer. The state of the weather, the force of example, the peculiar humour of purchasers, have made or marred many a sale ere now, as such influences will again.

Mr. Beale Browne quite equalled Mr. Turner in his doings with the Cotswolds, the show of which, however, was very limited, but with some grand sheep amongst them. The shepherd of Sir Robert Throckmorton having found at Cardiff that his system of fancy clipping was hardly appreciated, had now no difficulty in taking all the prizes for the Southdowns, where the credit of the short-wools centred. In the other varieties, more or less peculiar to these meetings, were the Dorset and Somerset horned sheep: and, still closer identified with the Society, the Exmoor mountaineers. These, it may be remembered, created some sensation at Cardiff, but they were naturally even better represented at Barnstaple. Like their companions a-field, the Devon cattle, there never was such a show of them. The breed promises to come fast into fashion, on the strength of several recommendations. They are hardy and active, carry a famous fleece, and show still better when sheared. Their cross with the Leicester is said to be capital; while good judges pronounce them well worth cultivating for themselves alone. Mr. Merson is the most famous breeder of them, although Mr. Robert Smith is also doing much with them on Exmoor. The Brinsworthy flock, however, has been known there for more than a century.

But they cultivate another race of mountaineers on Exmoor, at least so we were assured last year, when it was threatened the entry of clever ponies at Cardiff should be excelled at Barnstaple. And the word of promise was by no means broken. This was indisputably "the feature" of the Meeting. Mr. Acland's exhibition of Arts and Manufactures—the very red lines of Devons themselves, all paled before the ponies. The first question every one asked was, "Have you seen the ponies?" Or, granting that, "Did you ever see such a lot of ponies?" There could be but one answer, for never was there such a show of them before. It was not confined, either, to any one sort. There was not only the Exmoor, with his beautiful head, wild eye, shaggy mane, fine shoulder, and flat leg—but the equally useful and almost as good looking Welshman — that well-bred, handsome, but unprofitable speculation "the racing pony" — the cleverest of Galloways—the neatest of cobs, without lumber and with action. It was not extraordinary, perhaps, there should be some good specimens of the native breed; but the opportunity for comparison was truly wonderful. There was not a clever kind of pony, Scotch, Welsh, or English, but was at Barnstaple, and more than this, there was no such thing as the Shetlander to detract from the merits or the uniformity of the entry. It almost seemed as if some one of the many active gentlemen in the management had engaged himself in the selection of what should be exhibited, and what rejected. The Exmoors had still unmistakably the call. Mr. Knight sent three pony stallions, of so exactly the same style and character, that it was not until you saw them out that you could understand how the judges could separate them, or prefer one to the other. The crowning point of all was in this seeing them out, and "with the action of a pony" becomes more than ever a proverb. Mr. Wall, who went for the Welsh, had unfortunately over-done his pets in their preparation. A stallion pony was positively disfigured with fat; and there was scarcely one of his but would have shown better for a little more work. That beautiful miniature, sent by Mr. Blakemore to Cardiff last year, was here again in the Extra Stock class, as the property of Mr. Wall. The "talk," however, of the extra class was the famous Galloway stallion, "Bobby," three parts or more bred, with a dash of the Arabian to go back to. He has been brought out of Lincolnshire or Nottinghamshire by Mr. Robert Smith as a cross for the Exmoor pony—that is to give a little more size to the stallions. And certainly as far as good looks can go, his use is well warranted. But Bobby's character is even better still. He is the sire of many famous hacks in the districts we have traced him from, and some of the best of those clever cobs Mr. Milward annually brings up to Tattersall's have been got by him. One we believe was sold last year for two hundred guineas; while at the sale, on only Monday last, the highest price—a hundred and ten guineas—was given for one of his get, and four of his stock averaged over sixty guineas each. The only question is whether the cross with bigger animals may not gradually destroy the true character of the pony. But as it is, the Exmoor has been "improved" to the picture we now see. The original Moor or Mountain pony was a very different animal; with neither the size, power, nor handsome appearance of the present representative of the race.

Beyond the ponies, the horse show was not very remarkable: it seldom is at a West-country meeting. There were one or two useful cart mares, and a good Suffolk stallion, of a harder colour and closer build than is altogether the fashion. The young stock generally, either for heavy or light work, were below the mark, and some of the prizes were withheld. The two best hunting mares were more commendable, and the second had a very varmint, sneaking sort of look about her. The first prize yearling filly was one of her produce. But "the pull" here was with two-year-old cart colts, the first of which, Mr. Holland's, promises to furnish out into a great fine horse. The second prize was preferred by many Devonshire breeders as more suitable, from his compact form and smart action, to the district he was in. Although entered as a pure-bred draught-horse, there was a certain style and character about him it was difficult at first to account for; but it turns out his dam threw her two first foals to a thorough-bred horse, and hence the effect of "the impression" so visible in this animal. His owner, Mr. Watson, has often materially strengthened these meetings with some hunting stock; but he had only this one entry at Barnstaple.

"The Council report there had been a larger number of entries in all the principal classes of poultry than had ever been exhibited before"; and we think they might have added a smaller one of pigs. A very successful cross of the Chinese and Neapolitan led off the large breeds, and beyond them the Berkshire had it all to themselves. In the small sorts the improved Essex were equally distinguished. Leicester sheep, Essex pigs, and their own cattle are the strongholds of the Devonshire farmer.

There is nothing like carrying out a principle, and the Council of the West of England Society cannot certainly be accused of anything like half measures. When the Implement Committee were requested to report on the relative merits of the prize and certificate systems, they did not stoop to unravel the Gordian knot, but boldly cut it in twain. They answered not merely—Let there be no prizes—but, Let there be no trials, no reports, no certificates, and, in a word, let us officially have nothing at all to do with the matter. At Barnstaple they fairly took the public with them. The steam engines were at work in the yard, and we have already noticed the extraordinary interest the spectators found in the proceedings! But the steam-plough, the reapers, the mowers, the rakes, and haymakers, the horse-ploughs and the harrows were carefully ordered a long two miles off, where comparatively no one went to see them. We rode out one morning, and found some half-a-dozen sight-seers inspecting Smith of Woolston's cultivator; some dozen or two more were just leaving Owen's or Burgess and Key's new American mowing-machine, the impression, from the work performed, being altogether favourable. Then there was a reaper or two in action under proportionately excitable and encouraging circumstances; and ploughs and harrows, it was said, had also done some wonderful work. There was, indeed, a rumour of a series of local prizes, but no prize list was ever published. This would have been a breach of faith with the great implement makers. Then, these gentlemen, little and great, foreign and local, found they had got more than they wanted. "The Society did not take sufficient interest in the trials, and there ought to be reports, and instructions, and directions, and so on." "The abuse of a system should not be permitted to do away altogether with its manifest uses."

The middle-class or not very great men came to the almost general opinion that the non-trial plan would be productive of far more harm than good to them; while the little or local men spoke out in this wise:—

"NOTICE.

"As Prizes for Implements connected with the Bath and West of England Society have been discontinued, through the combination of the North Country Makers to the disadvantage of the Local Makers, I, as one perhaps who has won more prizes than any other manufacturer in this county of the above-named Society, am willing to test the improvements made since the last trial. I see no other way of doing so than by testing my portable engine now in the show-yard against any engine in the show, of corresponding power, for £10, notwithstanding all the largest makers are there represented.

"B. J. Webber."

Mr. Shuttleworth, in returning thanks at the dinner for the exhibitors, argued on the other side:—"He thought if there was any gentleman present who had hesitated to consent to the principle which the Society had adopted—that of withholding prizes from the implement exhibitors—he would consider that this exhibition had proved that the council had adopted the right course. It was a course which must now be adopted by all the great societies of the kingdom. They must recollect that the agriculturists of 1820 were not the agriculturists of 1859, and that it was an awful responsibility to fix upon any one man or half-dozen men to say which was the best machine. He believed that the farmers of England had got sufficient intelligence to judge for themselves of these matters, and that they did not want half-a-dozen gentlemen in any county to tell them what they required. The Bath and West of England had been considered the second society in England, but it was his candid opinion that it would soon rank as the first. It had given the key-note, and the Royal Agricultural Society of England must follow the example, or she would not stand where she now did. He had never seen better implements, and he had never seen better work performed."

This last sentence is particularly satisfactory, and on the strength of it we proceed to state that the following implements were at work during the week:—

The Ploughs of Messrs.
  Reeves
  Tasker
  Page & Co. (late Williams)
  Howard
  Ransome
  Maggs
  Wright
The Horse-Hoes of Messrs.
  Garrett
  Comins
The Harrows of Messrs.
  Page & Co.
  Howard
  Wright
  Lyne (lever harrows)
Clodcrushers of Messrs.
  Comins
  Maggs
The Reapers of Messrs.
  Cuthbert (by Busby)
  Hellard (of Taunton)
  Kearsley (of Ripon)
The Mowing Machines of Messrs.
  Owen
  Comins
The Haymakers of Messrs.
  Samuelson
  Ransome
  Smith & Ashby
The Horserakes of Messrs.
  Samuelson
  Ransome
  Howard
American Rake of
  Rowsell
The Paring Ploughs of Messrs.
  Snowden
  Vanstone
Hancock's Pulverising Plough,
And the Steam Plough of Mr. Smith, of Woolstone.

Of course all these did the best work ever seen. This was very evident to all but two exhibitors of reapers, who challenged each other to a public trial. More extraordinary still, this was suffered to come off. The following is the award:—"Whereas a challenge having been made between Mr. Busby, the representative of Messrs. Cuthbert and Co., and

Messrs. Hellard, of Taunton, relative to the merits of their respective reaping machines, umpires were chosen to decide on their respective merits; now we, having, been chosen to act as umpires for the above purpose, do make and publish this our award; that is to say, that the machine belonging to Mr. Cuthbert did its work first, made the best work, and in less time, and with considerably less distressive powers to the horses engaged; and we therefore declare it to be the best machine. Signed for self and Mr. Forrester, the arbitrators first above mentioned, this 3rd day of June, 1859.—John Shapland. We noticed that the price of Messrs. Hellard's machine was £25, and that of Messrs. Cuthbert & Co., represented by Mr. Busby, was £22."

It is impossible to give the names of all the exhibitors, and we would rather, as heretofore, have allowed the prize-list to determine the selection; but the following were amongst them—Barrett, Exall and Andrews, Bentall, Brown and May, Busby, Cambridge, Carson, Clayton and Shuttleworth, Comins, Coleman, Eddy, Fry, Garrett, Hart, Hellard, Holmes, Hornsby, Howard, Humphries, James, Maggs, Page, Picksley and Sims, Ransome, Reeves, Richmond and Chandler, Samuelson, Smith and Ashby, Tasker, Turner, Tuxford, and Webber. It is but right to say that no prize placard was exhibited, but reference to former triumphs of course abounded in the catalogues distributed at the different stands.

The Arts Department has been added to the exhibition of live stock and implements, according to the new number of the Society's Journal, " to please the farmers' wives while the farmers are handling the live stock or discussing the merits of the implements—to promote the general trade of the district—to diffuse a taste for elegance and novelty of design—to make known the best productions of the West of England—to promote the sale of drawings and pictures by native artists—to replenish the funds of the Society," and so on. The farmers' wives, and the farmers themselves, for that, had certainly no lack of entertainment to please them even in other ways beyond the Arts Department. We never knew such a holiday week. There were balls, and dinners, and concerts, and bespeaks at the theatre, and regattas, and fireworks—all superintended by and crowned with the princely hospitality of the Mayor. He had a small party of four hundred to dinner one day; a " private " ball, with the general public invited, another; continual luncheon laid out, and the best of welcomes for everybody. The only difficulty was to becomingly associate the business and pleasures of the occasion, although all we met with had amply succeeded in doing so. As far as hearty support, well-directed liberality, and active co-operation are concerned, the Society has never made a better selection than Barnstaple.

PRIZES FOR CATTLE.

DEVONS.

Judges.—S. Bloxidge, Warwick.
J. Buckley, Normanton, Loughborough.
T. Umbers, Wappenbury, Leamington.

The best Bull, above three years old.

The prize of 8 sovs. to John Bodley, Stockley Pomeroy, Crediton. (Monarch.)

The best Bull, not exceeding three years old.

First prize of 12 sovs., and Special Prize of 10 gs. as best young Bull, to James Merson, Brinsworthy, Northmolton. (Prince of Wales.)

Second, of 5 sovs., to W. Farthing, Stowey Court, Bridgwater. (Sir Peregrine.)

The best Bull, not exceeding two years old.

First prize of 10 sovs. to His Royal Highness the Prince Consort, Windsor. (The Colonel.)

Second, of 5 sovs., to T. Hooper, Heanton, Burnton, Pentrockstow, Devon. (Sir George.)

Third, of 3 sovs., to George Turner, Barnton, Exeter. (Prince Frederick.)

The best Cow in-calf or in-milk, having had a calf within six months of the show.

First prize of 8 sovs. to W. Farthing. (Nelly.)

Second, of 4 sovs., to Cecil Smith, Lydeard House, Taunton. (Florence.)

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to George Turner. (Vandine.)

Second, of 4 sovs., James Quartly, Molland House, South Molton. (Gem.)

The whole class highly commended.

The best pair of Heifers, not exceeding two years old.

First prize of 8 sovs. to His Royal Highness the Prince Consort. (Lovelia and Gardenia.)

Second, of 4 sovs., J. W. Buller, M.P., The Downes, Crediton.

SHORTHORNS.

Judges.—W. Bartholomew, Goltho Wragby.
W. Sanday, Holme Pierrepont, Nottingham.

The best Bull, above three years old.

The prize of 8 sovs. to Edward Holland, M.P., Dumbleton Hall, Evesham. (Duke of Cambridge.)

The best Bull, not exceeding three years old.

First prize of 12 sovs. to John W. Brown, Upcott, Swindon. (Botanist.)

Second, of 5 sovs., to Rev. G. T. Marker, Uffculme Vicarage, Cullumpton. (Saladin.)

The best Bull, not exceeding two years old.

First prize of 10 sovs. to R. Stratton, Broad Hinton, Swindon. (Mentor.)

Second, of 5 sovs., to C. H. Abbott, Long Ashton, Bristol. (Ariel.)

Commended.—G. W. Blaithwayt, Dyrham, Chippenham, for Bull. (Monarch.)

The best Cow in-calf or in-milk, having had a calf within six months of the Show.

First prize of 8 sovs. to R. Stratton. (Matchless 4th.)

Seccnd, of 4 sovs., to Lady Pigot, Chippenham, Cambridge. (Princess Saxe Weimar.)

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to C. Hardcastle Abbott, Long Ashton, Bristol. (Nonpareil.)

Second, of 4 sovs., to R. Stratton.

Highly commended.—Another of R. Stratton's Heifers.

The best pair of Heifers, not exceeding two years old.

First prize of 8 sovs. to Lady Pigot. (Empress of Hindostan and Stanley Rose.)

Second, of 4 sovs., to R. Stratton. (Matchless 6th and Roan Rosette.)

HEREFORDS.

Judges—J. Buckley,
S. Bloxidge,
T. Umbers,

The best Bull, above three years old.

The prize of 8 sovs. to Edward Price, Court-house, Pembridge, Leominster. (Goldfinder 2nd.)

The best Bull not exceeding three years old.

First prize of 12 sovs. to John Williams, St. Mary's, Kingsland, Leominster. (Sir Colin.)

Second of 5 sovs. to Edward Price. (Shamrock.)

The best Bull not exceeding two years old.

First prize of 10 sovs. to Thomas Edwards, Wintercott, Leominster. (Leominster.)

Second of 5 sovs. to Lord Bateman, Shobden Court, Leominster. (Shobden.)

The best Cow in-calf or in-milk, having had a calf within six months of the Show.

First prize of 8 sovs. to William Perry, Cholstrey, Leominster. (Worcester Flower.) Only one entry.

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to Lord Bateman.

Second of 4 sovs. to William Williams, Red House, Ely, Cardiff. (Blink Bonny.)

The best pair of Heifers not exceeding two years old.

First prize of 8 sovs. to Edward Price. (Well-a-Day and Miss Coningsby).

Second of 4 sovs. to J. Williams. (Barmaid and Gaylass.)

SHEEP.

LEICESTER, OR LONG-WOOLLED.

(Not qualified to compete as Cotswold.)

JUDGES.—W. Bartholomew.
W. Sanday.

The best Yearling Ram.

First prize of 6 sovs. to Thomas Potter, Yellowford, Thorverton, Devon (Leicester).

Second of 4 sovs. to George Turner (Leicester).

Third of 2 sovs. to George Turner (Leicester).

The best Ram of any other age.

First prize of 5 sovs. to George Turner (Leicester).

Second of 3 sovs. to George Turner (Leicester).

The best pen of Five Two-teethed Ewes.

First prize of 5 sovs. to George Turner (Leicester).

Second of 3 sovs. to James B. Corner, Longforth, Wellington (Leicester).

Third of 2 sovs. to J. W. Buller, M.P. (Leicester).

COTSWOLDS.

The best Yearling Ram.

First prize of 5 sovs. to T. B. Browne, Hampen, Andoversford.

Second of 3 sovs. to E. Handy, Sierford, Cheltenham.

The best Ram of any other age.

First prize of 4 sovs. to T. B. Browne.

Second of 2 sovs. to E. Handy.

The best pen of Five Two-teethed Ewes.

First prize of 5 sovs. to T. B. Browne.

Second of 3 sovs. to W. Smith, Bibury Fairford.

SHORTWOOLS.—SOUTHDOWNS.

JUDGES.—J. Beevis, Sydling, Dorchester.
W. Rigden, Hove, Brighton.
J. Whittaker, Bratton, Salisbury.

The best Yearling Ram.

First prize of 5 sovs. to Sir R. G. Throckmorton, Bart., Buckland, Faringdon.

Second of 3 sovs. to Sir R. G. Throckmorton.

The best Ram of any other age.

First prize of 4 sovs., and second of 2 sovs., both to Sir R. G. Throckmorton.

The best pen of Five Two-teeth Ewes.

First prize of 5 sovs. to Sir R. G. Throckmorton.

Second of 3 sovs. to R. N. Grenville, Butleigh, Glastonbury.

SHROPSHIRE DOWN, OR HAMPSHIRE DOWN.

(Not qualified to compete as Southdowns.)

The best Yearling Ram.

First prize of 5 sovs. to J. W. Brown, Uffcote (Hampshire).

Second of 3 sovs. to George Harbin, Newton Surmaville, Yeovil (Hampshire).

The best Ram of any other age.

First prize of 4 sovs. to Ed. Holland, M.P. (Hampshire).

Second of 2 sovs. to J. W. Brown (Hampshire).

The best pen of Five Two-teeth Ewes.

First prize of 5 sovs. to John Moore, Littlecott Farm, Pewsey (Hampshire).

Second of 3 sovs. to J. W. Brown (Hampshire).

SOMERSET AND DORSET HORNS.

The best Yearling Ram.

First prize of 5 sovs. to T. Danger, Huntstile, Bridgwater (Somerset).

Second of 3 sovs. to F. Bond, Whitelackington, Ilminster (Dorset).

The best Ram of any other age.

First prize of 3 sovs. to T. Danger (Somerset).

Second of 2 sovs. to F. Bond (Dorset).

The best pen of Five Two-teeth Ewes.

First prize of 5 sovs. to T. Danger (Somerset).

Second of 3 sovs. to F. Bond (Dorset).

MOUNTAIN SHEEP.

The best Ram of any age.

First prize of 4 sovs., and special prize of 5 gs. as best Exmoor ram, to James Merson, Brinsworthy.

Second of 2 sovs. to J. Merson.

The best pen of Five Two-teeth Ewes.

No entry.

The best pen of Five Ewes of any age.

First prize of 4 sovs., and special prize of 5 gs. as best pen of Exmoor ewes, James Merson.

Second of 2 sovs. to James Harris, Bittadon, Barnstaple.

HORSES.

JUDGES.—H. Fooks, Whitchurch, Blandford.
W. C. Spooner, Eling, Southampton.
H. Terrell, Meavy, Tavistock.

FOR AGRICULTURAL PURPOSES.

The best Mare and Foal, or in-Foal.

First prize of 8 sovs., Robert Gibbs, Carhampton, Dunster (black).

Second of 5 sovs., Sir R. G. Throckmorton (Suffolk).

The best Two-year-old Colt.

First prize of 10 sovs., Edward Holland, M.P. (Shire).

Second of 5 sovs., Richard H. Watson, Dorsely, Totnes (Gloucester).

The best Two-year-old Filly.

First prize *not awarded.*

Second of 3 sovs., William Smith, Bibury (Shire).

The best Yearling Colt or Filly.

First prize of 5 sovs., W. Smith, Bibury (Shire colt).

Second of 3 sovs., G. S. Poole, Bridgwater (colt).

HACKS AND HUNTERS.

The best Mare and Foal or in-Foal.

First prize of 8 sovs., Rev. G. F. Hodgson, North Petherton, Bridgwater.

Second of 5 sovs., Richard Passmore, Eastdown, Barnstaple.

The best Two-year-old Filly.

First prize of 5 sovs., Rev. G. F. Hodson—by Bowstring.

Second of 3 sovs., H. Baillie, Ash Hall, Cowbridge—by Sebastopol.

The best Yearling Colt or Filly.

First prize of 5 sovs., Richard Passmore (filly by Sextus).

Second of 3 sovs., H. Baillie (colt by St. George).

The best Two or Three-year-old Colt or Gelding.

First prize of 5 sovs., W. Gapper, Duddlestone, Taunton, Somerset (colt by Bowstring).

Second of 3 sovs., R. T. Head, The Briars, Alphington (colt by the Baron).

The best Mare Pony not exceeding 14-hands high.

First prize of 4 sovs., F. W. Knight, M.P., Exmoor Forest, Southmolton (Exmoor).

Second of 2 sovs., J. C. Wall, Redland Lodge, Bristol (Welsh).

The best Mare Pony not exceeding 13-hands high.

First prize of 4 sovs., R. Ogilvie, Barnstaple (Exmoor).

Second of 2 sovs., R. Cridge, South Aller Farm, Southmolton (Exmoor).

The best Stallion Pony not exceeding 14-hands high.

First prize of 5 sovs., J. C. Wall (Welsh).

Second of 3 sovs., R. Ogilvie (Welsh).

PIGS.

JUDGES.—H. Fooks.
W. C. Spooner.
H. Terrell.

LARGE BREED.

The best Boar not exceeding Two years old.

First prize of 4 sovs., William Bryant, Pitt Farm, Barnstaple (Chinese and Neapolitan).

Second of 2 sovs., W. Hewer, Sevenhampton, Highworth (Berkshire).

The best Breeding Sow.

First prize of 4 sovs., W. Hewer (Berkshire).

Second of 2 sovs., Sir R. G. Throckmorton, Bart. (Berkshire).

The best pen of three Breeding Sows not exceeding nine months old.

First prize of 3 sovs., W. Hewer (Berkshire).

Second of 2 sovs., Rev. H. G. Baily, Swindon (Berkshire).

SMALL BREED.

The best Boar not exceeding two years old.

First prize of 4 sovs., John Partridge, jun., Bow Crediton (Essex).

Second of 2 sovs., George Turner (Essex).

The best Breeding Sow.

First prize of 4 sovs., George Turner (Essex).

Second 2 sovs., W. D. Bragington, Knapp, Bideford (Essex).

The best pen of three Breeding Sows not exceeding nine months old.

First prize of 3 sovs., Rev. S. N. Kingdon, Bridgerule Vicarage, Holsworthy (black).

Second of 2 sovs., W. D. Bragington (Essex).

LOCAL PRIZES.

DEVON CATTLE.

The prize of 5 sovs., George Lock, Instow Barton, for pair of steers not exceeding three-and-a-half years.

First prize of 5 sovs., Richard Mogridge, Molland, Southmolton, for pair of steers not exceeding two-and-a-half years. Second of 3 sovs., R. Mogridge.

First prize of 4 sovs., John Snow, Bude, Braunton, near Barnstaple, for cow in calf. Second of 2 sovs., G. S. Burden, Kerscott, Swimbridge, Barnstaple, for cow in calf.

First prize of 3 sovs., W. Langdon, Ashford, Barnstaple, for heifer in calf. Second of 2 sovs., Henry Passmore, Ash Barton, for heifer in calf.

First prize of 3 sovs., John Tapp, Twitchen, Southmolton, for two years old heifer. Second of 2 sovs., John Snow.

First prize of 3 sovs., John Snow, for yearling heifer. Second of 2 sovs., G. S. Burden.

SHEEP.

The Prize of 3 sovs., Robert Symonds, Buckland Barton, Braunton, for Nott ram.

First prize of 3 sovs., Lord Clinton, Heanton Satchville, Beaford, for a pen of 5 Nott ewes. Second of 2 sovs, James B. Torr, Westleigh House, Bideford.

The prize of 2 sovs., James Harris, Bittadon, Barnstaple, for horned ram.

First prize of 3 sovs., James Harris, for pen of horned ewes. Second of 2 sovs., J. Harris.

First prize of 3 sovs., C. Halse, Molland, Southmolton, for pen of five horned wethers. Second of 2 sovs., C. Halse.

HORSES.

The prize of 3 sovs., James Harris, for bay cob Frolic.

The prize of 3 sovs., William Howe, Townsend, Braunton, for cart mare.

The prize of 2 sovs., H. K. Bowden, Berrynarbor, Combmartin, for cart colt.

The prize of 5 sovs., W. J. Brewer, Barnstaple, Devon, for his thorough-bred stallion (Swinton) by Mulatto.

The prize of 5 sovs., J. Harris, Bittadon, Barnstaple, Devon, for cart stallion (Suffolk).

PONIES.

The prize of 4 sovs., F. W. Knight, M.P., for Exmoor pony stallion, under 13 hands high.

The prize of 4 sovs., T. J. Dennis, Bradiford Villa, Barnstaple, Devon, for pony mare, under 13 hands high.

PIGS.

The prize of 3 sovs., A. Clement, Sloo Farm, Parkham, Bideford, Devon, for Essex sow.

The prize of 2 sovs., Thomas J. Dennis, for black sow.

HIGHLY COMMENDED.

J. Merson, for a pen of mountain ewes.

The Rev. J. G. Coplestone, for a cart filly.

Thomas Brady, for a riding filly.

J. Merson, for an Exmoor pony mare.

J. A. Bude, for a mare pony.

Sir R. Throckmorton, for a Berkshire sow.

F. W. Knight, M.P., for two Exmoor pony stallions.

COMMENDED.

S. Kingdon, Lynch, Thorverton, Devon, for a Leicester ram.

G. P. Hartnoll, Court Hayes, Braunton, Devon, for a Leicester ram.

T. B. Brown, for a Cotswold ram.

J. Moore, Littlecott Farm, Pewsey, Wilts, for two Southdown rams.

George Harbin, for a pen of Hampshire Down ewes.

J. Moore, for a pen of Hampshire Down ewes.

Jas. Merson, for a mountain ram.

T. Keable, Rowdefield Farm, Devizes, Wilts, for a cart mare.

R. Bucknell, Whitefield, Southmolton, for a cart colt.

Sir R. G. Throckmorton, Bart., for a cart colt.

John Anthony, Yealmpton Mills, Yealmpton, Devon, for a riding gelding.

W. Hewer, for a Berkshire boar.

Rev. John Huyshe, Clysthydon Rectory, Collompton, for a breeding sow.

Thomas Brailey, Bishop's Tawton, for a bay cob.

R. Symonds, Buckland Barton, Braunton, for a black sow.

EXTRA STOCK.

A prize of £4, Richard Pethebridge, Borough Farm, Barnstaple, for Devon bull.

A prize of £2, John Partridge, Bow, Crediton, for pen of Leicester ewes.

A prize of £2, James Merson, for pen of Exmoor ewes and lambs.

A prize of £2, George Elliott, Swilley Farm, Plymouth, for cart stallion.

A prize of £2, W. I. Brewer, Lichdon, Banstaple, for thorough-bred horse (Firebrand.)

A prize of £2 and the special prize of 5 guineas, as the best stallion pony, not exceeding 14 hands high, to Robert Smith, Emmett's Grange, Southmolton, for Scotland entire pony Bobby.)

A prize of £2, James C. Wall, for entire Welsh pony.

Highly Commended in Extra stock.—The Rev. J. Bond, Romansleigh Rectory, for pen of white Ducie pigs.

Commended. — J. Merson, for Devon cow, and W. F. Neville, for pen of Yorkshire sows.

ANNUAL MEETING.

The General Meeting of the members of the Society took place on Thursday, the president of the year, J. Sillifant, Esq., in the chair.

The minutes of the last meeting having been read and con firmed, the President read a letter he had received from Sir Thomas Dyke Acland, enclosing a cheque for £50, which he requested might be distributed as extra prizes among the successful exhibitors of cattle and sheep. The letter was received with acclamation, and a vote of thanks was unanimously passed to the donor.

Several gentlemen were then elected members of the Society.

Mr. Maule, the secretary, read the report of the Council, of which the following is an abstract:—

The Council reported the steady increase of the Society. There was since the last annual meeting an increase of five governors, two life members, and 75 other members, making a total gain of 82. The Council reported that his Royal Highness the Prince Consort had been graciously pleased to honour the Society by becoming a member, an annual subscriber, and an exhibitor. There were 146 exhibitors of stock at the present meeting; and the number of animals was: cattle 177, sheep 325, horses 55, pigs 35; total 592. The number of exhibitors of implements was 108, and about 1,080 articles were entered for exhibition in this department. In the portion appropriated to machinery in motion there were 18 exhibitors. The report stated that in January last the Council decided upon having an exhibition of arts and industry, and they had the satisfaction of reporting that the exhibition comprised one of the most beautiful collections of the works of art to be found in this country. The Council acknowledged the kindness of those who had contributed in this department, in which there were about 5,000 articles. They recommended that the place of meeting next year be at Dorchester. The Committee appointed by the Society, on the question of weights and measures, reported that they considered it desirable that a uniform standard of weight and measure should be adopted throughout the kingdom; that weight is the surest test of quantity as well as quality of grain; and that in any legislation on the subject it will be necessary to determine what weight of corn should be substituted for the imperial bushel, in ascertaining the averages for the purposes of the tithe commutation. The Council recommended that Lord Rivers be invited to accept the appointment of president for the ensuing year. The Council acknowledged the valuable assistance rendered by the various local railway companies in facilitating the objects of the Society. The Council reported that there had been a larger number of entries in all the principal classes of the poultry show than hitherto exhibited. The Council congratulated the Society upon the hospitable reception they had met with in North Devon, and considered the thanks of the Society to be especially due to the local committee of management.

The adoption of the report was moved by Sir George Bucley, seconded by Mr. Thompson, and agreed to. Some explanations took place respecting a misunderstanding which existed as to the intention of the Council to recommend another gentleman in the county of Dorset, for the office of president during the ensuing year. The misunderstanding appeared to have arisen from a private conversation which took place between a Dorsetshire gentleman and one of the members of the Council, who attended as a deputation to make arrangements for the meeting next year at Dorchester.

On the motion of the President, Richard Bremridge, Esq., mayor of Barnstaple, was elected a vice-president of the society.

Mr. T. WILLS suggested that the report of the proceedings of the society should be circulated within six months of the holding of each annual meeting.

Mr. ACLAND, in reply, said the *Journal* had been ready for circulation during the past two years within six weeks after the holding of the meetings, but they could not be sent to members gratuitously although they might be had on application. He recommended that an editor should be appointed to superintend the *Journal*, which he suggested should then be published twice every year.

A vote of thanks to the president concluded the proceedings.

THE ENGLISH FARMER IN BELGIUM.

SIR,—I never knew any one in England grow "Jerusalem artichokes" on a large scale as food for cattle; I will therefore relate the proceedings and results of an agriculturist in France who has done so—M. Aristide Monterol—whose land is too poor to grow beetroots with advantage. So universal there is the opinion that all roots should first be manufactured into something in preference to consuming them in a raw state, that this gentleman grew sufficient artichokes to keep his small distillery constantly at work throughout the season, viz., three tons per day, and with the residue he fed his forty fatting bullocks and twenty stores. But I cannot do better than give you his own account, in the *Journal d'Agriculture Progressive*:—

"For these four years past all who are interested in agricultural progress have never ceased to proclaim an agricultural distillery an indispensable annexation to a farm, as it must lead to the increase of root cultivation, and consequently more abundant crops of corn.

"This is well understood and practised, and lucky is he who has erected one. I am happily so situated; and if I have not many acres of beetroots, I have abundance of Jerusalem artichokes, which answer my purpose as well, because they do not require such good land, produce heavily, and give five per cent. alcohol in distillation (equal to [illegible]9 gallons English at proof), and, above all, a residue, which is of the utmost consequence.

"Forage being so scarce for some months past, the question has been raised, whether it is best economy to give our roots to the cattle in their natural state, or first distil them?

"My crop of hay (1858) was less than half an average; and having sixty head of valuable cattle, which I would not sell at present prices, it is of consequence to me to make the most of my fodder.

"I have not many bète raves, but plenty of artichokes, as, in spite of the dry summer, they perfectly succeeded. They were eleven feet high (English), and the roots produced twelve to fourteen tons per acre.

"Everyone knows bète raves raw are not good for cattle or sheep. Last year I saw the ill effects of them thus used on a neighbour's flock, he having lost many of his sheep, whereas I did not lose one, and they fattened most rapidly with the residue of my distillery.

"If I were to feed my cattle with my raw artichokes, what could I do with my barn full of cloverseed, stover, and rape husks and chaff of wheat and oats? Cattle will not do well on these alone, and I cannot afford to use these resources in this year of need. I shall be told, 'cook your roots, and mix these things with them.' True, I might do so; but I have forty fatting bullocks, among my sixty, which require better food. However, let us look at this cooking affair. First, I must erect a boiler at some outlay; then the roots must be washed, sliced, cooked, and when done mixt with the dry chaff, &c., and left to ferment for twenty-four hours: all this would cost 4s. 2d. per ton. My register of expenses of distillation tells me this is exactly the cost of distilling a ton of roots. The amounts are exactly the same, but, by the latter, I have the sugar turned into alcohol, and the residue also; thus I get two productions instead of one.

"Now, how much nourishment for cattle have I from each process? I must have three tons per day. Does not the fermentation in the cooking process destroy some of the sugar? Most certainly it does; and the alcohol remains in the three tons to the extent of fifty-seven gallons (English), which is nearly a gallon of spirit in each cwt.

"Is alcohol nourishing for cattle? because if so, it opens the question, How much per day can each beast take with advantage?

"Practice has quite decided that raw roots are not more valuable than the distilled residue.

"If I cook my roots they lose in weight 10 to 12 per cent. By distilling they lose 25, *i. e.*, 15 per cent. more than by cooking. Let us examine if this loss is actual or imaginary.

"What is really the substance lost by distillation? It is the sugar in shape of alcohol; but it is not *all* alcohol; some of it is water, which constitutes this difference of 15 per cent. This water would have been useless to the cattle, and in its evaporation has not taken any of the nutritive parts of the roots with it. The pulp or residue retains then *all* the salts, the cellular, and albuminous parts, the fatty matter, and the azotes, which are really useful and nourishing to cattle. Thus in smaller volume the pulp contains the same value, and in my opinion this loss of 15 per cent. in weight is not of the least importance whatever.

"But let us for a moment admit it is a loss, and then consider if it is best to distil. Figures can only answer this question. I will continue my calculations on 3 tons. Thus

	£	s.	d.
"If I cook my 3 tons roots at 8s. 4d., that amounts to	1	5	0
"Washing, cutting, cooking ditto at 4s. 2d.	0	12	6
	1	17	6

"And I have 2 tons 14 cwts. of food.

	£	s.	d.
"If I distil my 3 tons roots at 8s. 4d.	1	5	0
"At an expense of course including washing and cutting of 4s. 2d.	0	12	6
	1	17	6

"I have 2 tons 5 cwt. of residue, being 15 cwt. less than the raw root, which at 8s. 4d. per ton would be 6s. 3d., and 12s. 6d. is to be added for the cost of distillation. But what have I for this 18s. 9d.? I have 57 gallons of spirit worth £3 2s. 6d., and deducting from that the 18s. 9d., there remains a clear profit of £2 3s. 9d.; or if we add the 4s. 2d. per ton, cost of washing, cutting, and fermenting on 2 tons 5 cwt., which is already done for us when distilled, the profit would be £2 13s. 1½d., which would amount to a difference in my favour of £398 8s. 9d. per annum—as I work 3 tons of roots per day, and the season lasts 150 days.

"I ask every sensible farmer if with these *facts* before him distillation is not the best method of obtaining profit from our roots, and *food for our cattle?*

"To repair the *supposed* loss of 15 cwt. of food, which is equal in nutritive quality to 3⅔ cwt. of hay, I must buy corn, as my neighbours have no hay for sale.

"I should buy rye, 155lbs., which would cost here 7s. 6d., and here I should have a balance in my favour of 1s. 10½d. per day.

"Thus both in quantity and quality (with the 15 cwt. *supposed* loss made good) of food the distilled roots are the best, and it is the most advantageous mode of preparing them for cattle. Even were the price of alcohol to fall one-third under its present value, I would continue it.

"My opinion is formed on my own experience reduced to figures, which every one may criticize, and if any one can show me an error I should be obliged.

"ARISTIDE MONTEROL."

The above letter is so clear an exposition of the facts adduced that I have given the whole of its matter condensed. I never read one which more clearly showed the manner in which the British farmer may understand how the juice of the succulent beet-root is better turned into gin than washed through our animals. Mr. Monterol is one of those cultivators who has a small distillery on his farm; and he therefore only charges 8s. 4d. per ton as the price of his roots in his very nice calculations. I find the agricultural experiments are carried on in a much more careful manner than in England, and more frequently also. Thus their agricultural journals are exceedingly interesting; and you can hardly take up one of them without finding one or more articles which would be gladly read by my countrymen.

There would be great difficulty in obtaining a sufficient number of subscribers to pay the expenses of it, or I would publish a monthly selection from all of them. They would be a useful addition to the agricultural shelf of any gentleman's library.

The leaves and tops of the stalks are useful as fodder in this country, where nothing of that sort is lost. Even leaves of trees are being applied to that purpose, and the leaves of the beetroot are being experimented on to discover if they can be preserved in salt. I know one gentleman so doing, and I will communicate to you, in some future letter, his results. When last I saw him, he told me he believed he should succeed.

The weight of stalk and leaf per acre would be very heavy; and if the roots were left till November, would make an excellent cover for game. Mr. Monterol does not say if he took them all up at once, or as he required them; but as the Jerusalem artichoke stands the frost, I do not see why they should not be daily raised as wanted. They require so little manure, that the stalks, mixed with sufficient lime to decompose them, would be sufficient to keep up the crop; at the same time, like all roots, no doubt the more the dung the heavier the produce.

Tobacco is even cheaper in Belgium than in France. It is sown in beds, in March, very highly manured, protected from frost by long straw laid over the bed, and from cold winds by strawed hurdles. It is transplanted on the 25th of May. I gave full particulars of its cultivation in the June number of the *Farmer's Magazine* in 1858, page 533.

Cow Cabbage.—I know a man who carries out the cultivation of this most productive plant to a further extent than any one else I ever met with. He preferred the great drum-head cabbage, which forms a solid hard globe of food, to the variety which many like here, which grows high, and with an abundance of leaf. It is called the "northern-curled cabbage," and stands frost well. In the spring they cut the top, and allow it to shoot again.

A quarter of a pound of seed is sufficient to produce plants for an acre, at distances of two feet by two and a-half. My friend at first plants his much thicker, thinning them by degrees; and by growing a succession of crops he has a supply all the year round nearly: and certainly a most extraordinary weight he produces per acre.

He sowed his first batch in April, to be transplanted in June. In dry weather he had that part of the bed well watered, the night before, where he wished to draw up the plants for the morrow, and then soaked the roots in guanoed water till planted, being careful the roots were not doubled up: which is prevented by giving the plants a slight scratch upward after the first pressure of the earth to them. This crop he only planted at such distances as he wished them to remain till perfect in growth, viz., two feet in the row, and three feet from row to row. The time of transplanting being the height of summer, he wished to have the intervals free, to enable him to clean the land. If the weather is dry, the plants should be watered at the time of planting. This crop he used as he wanted it till the spring, when, being finished, he had his other crop.

This one was sown in June, to be transplanted at nine inches each way after harvest, as the market-gardeners plant their "collards" near London. The land cannot be too highly manured, as the more rapidly they grow the better, not many weeks of growing weather being left for them at the autumn-end of the year. As they become too close, every other one is taken out, and used for sheep or cattle as required; and when spring commences, and all other cabbage and turnips are consumed, he then again takes them as he prefers—every other row, or every other cabbage, or wholly clearing the ground.

The grand secret of growing the numerous green crops they have abroad, occupying the ground but so short a time, is the heavy coats of manure they put on for them. We are not nearly so careful as we ought to be, to economise every sort of offal which can possibly be turned to advantage as manure. We never, I expect, can use the liquid manure of towns as they do; it is contrary to our ideas of delicacy or health, as we are only anxious for our town-drainage to run off as quickly as possible, whereas they allow the most offensive to remain in the house-cesspools till they are full, when men come round with large butts on wheels, and purchase it. They have a long leather hose and a small patent pump, and quickly, and without much offence to the olfactories, empty the cesspools into these butts. In the large towns this is done by dealers, who, after adulterating it with water, sell it to the farmers, who carry it sometimes as back-carriage in casks, with large bung-holes stopped with straw. They cart it into the fields, and at certain intervals empty each cask into a tub, and from that tub spread it by means of a small bucket at the end of a long pole. Thus the whole field is gone over as equally as possible; and they generally give two such dressings to each green crop. Farm-yard liquid they use in the same way, which has less rain-water admixed with it than in our farm-yards, because their buildings are smaller, and shorter in the roofs; consequently they have not those heavy flows of rain-water which we have from our so frequently unspouted eaves, and, also, there is not so much rain falling there as with us. I once had a farm with a manure tank in the centre of the yard; more rain certainly ran into it than I could wish, and for that reason I will not say it was a fair trial of liquid manure. But, allowing for its reduced quality, I certainly was disappointed at the result as I carted it on a piece of clover; and I never could see any benefit from it.

I had a friend who *burnt* his weedy hedge-rows and brows, and any other spare earth, and filled a shed with the ashes, on which, with troughs and a pump, he conveyed every few days the contents of his tank. The ashes absorbed the liquid, and it became a most excellent and *portable* manure. I do not think there is at present a cheaper or better mode of using our farm-yard drainage, which is not worth the expense of carting in its liquid state, and still worth too much to be lost.

I will finish the cow-cabbage by saying it will produce more weight per acre than wurtzel, with *much less exhaustion* to the land; and I am only surprised they are not more generally grown. It still, with all our improvements, takes time to overcome prejudices; but I fancy nothing would tend more to destroy them, and introduce useful "innovations," than the present price of wheat.

Gigantic Sainfoin, or, as they call it in Belgium, "twice-cutting sainfoin, they sow three bushels to the acre, in the husk. They consider it requires better land than the common, and that it should only be sown on the same land at intervals of at least ten years.

This crop is of course well known in England, but not so much grown as it ought to be. Some twenty years ago a little of this seed was discovered in the loft of a corn-dealer at Royston, in Herts; he did not know how it came there. It was sown; and from that very stock it was distributed over England: but whether it originated from Belgium, or the Belgian sort from that, I cannot say.

Winter Colza, or Rape.—This is, of all others, a crop applicable to us. It does not draw the land; it occupies it but a few summer months, enabling a second crop to be taken. It is always saleable; and, moreover, the oil is more likely to rise than fall in value in time hence, as every year the number of oil lamps increases.

It is sown from the 1st of July to middle of August, at the rate of five quarts to the acre; this producing sufficient plants for three acres. In the autumn it is transplanted on the stubbles, which are ploughed deeply, and laid very dry, by cleaning out every furrow as a water-furrow. They even spade them out, and throw the earth on to the "lands." They are planted at one foot from row to row, or a little more; and from four to six inches in the row. The ground is not harrowed, but left rough all the winter. In spring it is hoed, but it very soon shoots beyond the hoe; and in June, or beginning of July, according to the earliness of the season and land, it is harvested. It is fit to cut as soon as the pods begin to turn yellow.

It is thrashed in the field. The chaff is used for mixing with the residue of the distilleries, and the straw is used for litter. Three quarters per acre may be calculated on, if well done and pretty good land; though very much more is sometimes grown on the rich "polders" of Belgium—this is that district running along the coast from Antwerp nearly to Dunkerque: I have heard of as high as five quarters.

No crop is grown with less trouble; it is not an uncertain one; and very profitable. It may be succeeded by cow-cabbage or white turnips the same year.

I wonder it is not thus grown for sheep feed, in the spring, in England. There is no plant, under this method of growing it, so early; and, unlike white turnips, it does not become woody. It may even be eaten down, and afterwards allowed to stand for seed.

The rapeseed contains four-elevenths of its weight of oil. So supposing a bushel weighs half a hundred weight, this three quarters per acre would produce, in round numbers, eight hundred weight of oilcake. This would last two hundred sheep four and a-half days: if they each consume 1 lb. per day, call it five days. Now, as an acre of good swedes will last two hundred sheep ten days, I think we may calculate on producing a crop of white turnips on this colza stubble which would last the same flock five days with the cake. Thus the dressing would be equal to that derived from the consumption of half a-piece of good swedes, and the straw being also converted into manure in the yards, the farm receives back all the crop, less the oil. Therefore, considering also that there is no crop which derives a larger proportion of subsistence from the air than colza, it cannot be injurious, but, on the contrary, a benefit to the land, and if continually grown would maintain it in a constant state of improvement.

Poste Restante, Brussels. WM. HARTLEY.

BUCKWHEAT OR BRANT.

Buckwheat has been grown in this country for nearly three hundred years, yet appears to have made small progress, being little attended to as an agricultural crop here, while it is held in considerable repute on the continent and in America. Although not classed with the cereals, its seed furnishes sustenance to large numbers of people throughout Asia and Europe, and is eaten with relish by many in the United States. It forms a valuable article of diet in countries where wheat will not succeed. The people of the East make declicacies from the meal of buckwheat, which is called "ble monde," or peeled grain. Among the most chosen dishes served upon the tables at the splendid banquets of Haroum el Raschid, Caliph of Bagdad (recorded in the Thousand and One Nights), were bermacedes or ragouts of mutton, with the farinaceous meal of the "ble monde," that is, of peeled buckwheat. Lord Macartney, in his embassy to China, reports that a dish offered him by the Chinese in the name of the Emperor, as a mark of distinction, was nothing but the meal of buckwheat. In China, Japan, and Russia, it forms a considerable portion of the food of the inhabitants. Buckwheat is cultivated in the Himalayas, and in the mountainous countries north of Bengal, Oude, &c. It is supposed to have originated in Asia; and one of the common species cultivated comes from Siberia and Tartary. Buckwheat seems to have been introduced into France in the eighth century by the Saracens, in the time of the invasion of that country, and has preserved its name (Sarrazin) from this people, as it has in Poland, where it was introduced by the Tartars six centuries afterwards, where it is called Tartarka.

The two kinds of buckwheat usually grown, viz., common buckwheat *(Fagopyrum esculentum)*, and the Tartarian buckwheat *(F. tataricum)* differs very much. The former is more farinaceous than the latter. Prepared with the hull, it is sweeter, and does not heat so quick, as it is less resinous than the other kind with the hull. The taste is more bitter; but it may be kept a long time. The latter sort, however, is preferred. Two crops of this can be grown in a season, since neither frosts nor hot winds injure it; and it produces fifty, one hundred, and even five hundred fold, while that first named does not produce more than twenty or thirty to one. The Tartars did not employ the first, as they did not use the farina, but hulling the grains, they cooked them as they do rice, boiling them in water or milk. The process of hulling was performed without the use of a mill. Boiling water was poured upon the seeds, and after standing an hour, the water was poured off, and the grains were dried by the fire or in the sun; and after they were dry, placed between two sheets, and rolled with a wooden roller, by which the hulls were separated from the grains. They were then fanned, and ready to be cooked. What is surprising, as the result of this process, is, the grains were kept distinct from each other, while those hulled in a mill and cooked, became compact and adhesive.

Buckwheat forms in some departments of France the principal bread corn of the people. Over the continent generally buckwheat, in mountain districts, is much grown. In Poland it is very generally sold, both in the form of coarse and of fine white meal. In Germany it is well known as a healthy light nutriment, and is much used in making pork sausages, mixed with the muscle and fat. France harvests more than 2,000,000 quarters of buckwheat, and about two millions and a half of the population live chiefly on this production. They use it in the form of farina, of which they make a porridge, pancakes, and bread; but for the last it must be mingled with the flour of barley and of rye. It is thus made as black as the soot of the chimney. It is dark-coloured, because the grain is mixed with it without hulling. The late Mr. H. Colman, in his Survey of Continental Agriculture, states, that buckwheat is grown very largely in poor soils, in some parts of France; but it seems (he says) to be a mere shift to live, and leaves only the regret that land capable of a much better cultivation should be thus appropriated; and yet buckwheat is largely grown in his own country. In the United Kingdom the main consumption of buckwheat is for feeding poultry and some kinds of stock. In 1846 and 1847 large quantities of buckwheat were introduced from the continent, reaching to nearly 46,000 quarters in the two years: now the imports annually are very small, and being mixed up with bere or bigg in the returns, it is difficult to ascertain the quantities precisely, but the imports are scarcely more than 2,000 to 3,000 quarters. Besides fattening pigs on the continent, it is given to horses, all animals being fond of the seeds. It is sometimes used by distillers, being capable of yielding a considerable quantity of good spirit. At Dantzic it is said to be extensively employed for this purpose. In Europe, and also in some places in America, it is very extensively raised as food for bees. It is grown for fodder, and if cured in a green state, and stowed away in small stacks of two or three tons each, or in a dry loft, or on an open scaffold, and then steamed before feeding during the winter, or cut fine in a straw-cutter, slightly moistened with water, and mixed with meal, it makes tolerably nutritious food for cattle and horses. Finally, it is also grown as a fertilizer, to be ploughed deep under the soil when in blossom. Though not equal to clover for this purpose, still it enriches the land rapidly, and has the advantage of growing when and where clover will scarcely show its more delicate head.

The consumption of buckwheat flour in the chief American cities during the winter months is very great. The coarse parts of the grain, after the flour has been separated, make good food for swine, milch cows, or other stock; and, as a good yield can frequently be obtained on land where wheat cannot usually be cultivated to profit, the crop has many advantages.

Buckwheat, although very popular in America, seems, however, to be confined to a few States, principally New England and the middle States. The crop is not raised by any persons in extensive fields, but in scattered patches; so that though the aggregate forms a considerable amount, yet it does not show so much to the eye as to attract notice. Hence the information respecting it and the means of forming an estimate are both more scanty and less reliable than with regard to many other crops. The best soil, undoubtedly, for buckwheat, is a good, dry, light sandy loam; but it may be made to grow well in any soil if properly prepared. Fresh manure should only be applied to this crop when a growth of straw alone is wanted. When its grain is desired, dissolved bones is the best manure; next comes a mixture, half-and-half of guano and bone-dust. Large crops have been raised on the poor sandy soils of Long Island and New Jersey, by an application of ten to fifteen bushels of bone-dust per acre. Plough deep, sow the seed broadcast, scatter manure, then harrow well, and finish by rolling smooth. If sown for a fertilizer or for fodder, put in one and-a-half to two bushels per acre; if for the grain, three-quarters to one and-a-half bushels per acre is usually sufficient. Sow broad-cast or in drills as most convenient. If for grain, cut as soon as the berry is well filled with milk, and before it gets very hard. Loss frequently ensues by letting it stand too long, for it is a grain that shells easily, as the straw is turned in the field. When wanted for fodder, cut just as it is going out of bloom, and cure the same as clover hay. When ploughed in for a fertilizer, do this in full bloom, and cover as deep and as well as possible. Buckwheat is a crop of considerable importance in many parts of the State of New York. It is usually sown from the middle of June up to July, and sometimes as late as August. A bushel of seed to the acre is the usual quantity, but more or less is occasionally employed. Sometimes it is sown on land from which a crop of hay has been taken the same season, and on a clover lay; if the soil is loamy and friable, it will frequently do well. Buckwheat is also sometimes sown in New York in connection with winter wheat as a protection to the latter for winter. The maximum yield per acre seems to be about 50 bushels, the average 25 bushels, and 12 bushels to the acre will, it is said, there pay for cultivation. It is rather an uncertain crop. In a good season it may produce from 15 to 30 bushels per acre, but an early frost or a few days of hot weather blasts the husbandman's hopes.

Buckwheat flour in limited quantities sells in America for nearly the same price as wheat flour. Indeed so high has the former been at times, that wheat flour has been extensively mixed with it. Hence few farm crops have paid better of late years than buckwheat. Its principal use among the Americans is for pancakes, familiarly known as flap-jacks or slap-jacks; and as our farmers' wives may like to gain a wrinkle respecting the mode of preparing this favourite article of food, considered by the Americans and Canadians as a national dainty, we give the recipe for making them, which is furnished by Mrs. C. P. Trail, in her *Female Emigrants' Guide*: "Take about a quart or three pints of the finely-sifted flour, mix to a batter, with warm milk or water, a tea-spoonful of salt and half a tea-cupful of good barm; beat it well for a few minutes, till it is smooth, and leave it in a warm place all night, covered in an earthen pot or tin pail, with cover. In the morning have ready your griddle or frying-pan wiped clean, and some lard or butter, made quite hot; into this drop a large spoonful or small tea-cupful at a time of your light batter, till your pan be full; but do not let them touch. If the lard be very hot the pancakes will set as you pour them in, and be well-shaped and as light as an honeycomb. Fry of a light brown, and turn them; lay them on a hot plate, and serve quite hot with maple-molasses, treacle, or butter."

Buckwheat pancakes are a favourite breakfast dish with the old Canadian settlers. The recently-improved hulling mills for removing the black shell has tended greatly to extend the use of buckwheat in America.

So much for buckwheat: if not worth notice by our own farmers, it is at least deserving attention in the Colonies.

OXFORDSHIRE AGRICULTURAL SOCIETY,

AND

BANBURY AGRICULTURAL ASSOCIATION.

MEETING AT OXFORD.

Within the last few months the two societies, thus judiciously rolled into one, have come to a still better understanding with each other. They are for the future to pull more uniformly together, and it is only a question whether the somewhat clumsy title they continue to work under could not merge into one more thoroughly comprehensive of the county. There are many still, who read its action as limited to the immediate districts of Oxford and Banbury. Certain it is that this year's show had by no means the general support of the shire, either in the way of exhibitors or visitors. The attendance of the latter was very moderate, while the absence of the gentlemen of the county was so marked as to call forth a complaint at the dinner. Mr. Middleton, on behalf of the Oxford, and Mr. Cother, for the Banbury committee, argued on the absolute duty of their landlords giving something more than a merely passive encouragement to associations so closely identified with their own welfare. The three county members were present, but beyond them the list was very circumscribed, and yet Oxfordshire abounds in more local institutions of the same order, where the Squire is sure to take a lead and an interest. It has to be clearly set forth that this united Oxford and Banbury Society now embraces in its operations the strength of the whole county. And this once understood, the farmers themselves will want a little whipping up as well as "the gentlemen."

In fact, the show, although not large, was quite good enough to have commanded more attention from the agriculturist. Some of the classes were exceedingly well filled, and many of the prize animals would take precedence in fuller meetings. As it is, some of them are going on to Warwick, but chiefly in competition for the local premiums. Such sheep, however, as Mr. Cother's Cotswold rams, or Mr. Gillett's Oxfordshire Downs, would be likely to hold their own in the best of company. The entry of the sheep now associated in their very name with society was altogether commendable and encouraging, but still the Brize Norton flock had clearly the best of it. The prize rams are both really good sheep, with beautiful heads—a nice test in such a breed or cross—a healthy active carriage, and a touch almost as fine as a Leicester. There was a great deal of discussion as to which was the better of Mr. Cother's shearling Cotswolds: but as they both had the honour of beating Mr. Beale Browne's and Mr. Smith's representatives, their quality may be estimated. Mr. Browne righted again with the ewes, the beautiful pen he sent only last week to Barnstaple being equally distinguished here. The Southdown and other short-woolled sheep were rather overdone in the way of prizes. There was very little competition, and in this scarcely any decided character of the sort supposed to be so illustrated.

If the Oxfordshire Down sheep are finding further favour in these parts, so assuredly are the Shorthorn cattle. Both landlord and tenant are alike taking to them, and there was no other breed exhibited. Amongst Dukes, Members of Parliament, and Masters of Hounds, whose herds had a place in the entry, it was a healthy sign to see a plain practical farmer take the first. One of the effects of this should be to cause some alteration in the arrangement of the prize sheet. In some cases, as this is now drawn out, a precial premium is given, not to the best beast of the class, but to the best in the name of a tenant farmer. The awards as a consequence were occasionally in need of explanation, and the worst of three entries, in one particular instance, had stil to be adjudged the prize. Mr. Hutt's heifer is of extraordinary size for her age, as well as being of very good symmetry and quality. The "next best" to her was Mr. Langston's prize bull, just a week or so too old to take the special prize of his class. Both this and Mr. Hall's highly commended bull have some very good blood in their pedigrees, as they demonstrate in the handling; and Mr. Langston's, at least, goes on to the great meeting at Warwick. In the cow classes the judges had the courage to pass over a great fine cow that was palpably too fat to carry out the conditions as to being "in milk;" but the entry of aged cows was altogether very creditable to the county, and far superior to the bulls of the same age. There were only three of these exhibited, to one of which the judges gave the first prize, the second to another, and they commended the third. Still there was nothing extraordinary in any of them;

and the first-prize bull "began" with a common looking steer's head. As a whole, however, estimated by its general strength, the entry of Shorthorns, either for appearance or the more delicate test of quality and pedigree, was far above the average of what it still really was—a mere country show; for the redoubtable Mr. Stratton had overlooked the time for making his nominations, and there was not an animal of his on the ground.

The show of horses was confined to hunting and draught brood mares, and although the entries were lamentably short, there was at least one good specimen of either sort. Mr. Hall's hunting mare is, indeed, as fine an animal as one would wish to see—of great size and substance, and still with plenty of "breeding" about her. She was quite the attraction of the day, being rendered the yet more remarkable by the twin colt foals by Woolwich at her side. Singularly enough the mare that took this prize at the Banbury show last summer has also dropped twin foals. Mr. Sheldon's draught mare was well worthy of her prize—very active and good looking—and there were one or two more useful animals shown against her, but for numbers in either class there was no competition. The judges, however, were very kindly disposed to what did come, and dealt out their commendations accordingly.

The implement section of the show was chiefly commendable for some well-arranged "collections," but the opportunity at such a season of the year of putting the mowing machines to work was unfortunately not availed of. It might have added materially to the interest of the meeting, which, we can only repeat, was not so great as it should have been. No where was this more evident than at the dinner. Mr. Henley, as chairman, had a very uphill time of it; but the services of those gentlemen who did attend will no doubt be remembered. To keep the Oxfordshire Agricultural Society, however, fairly going, both landlord and tenant have something more to do for it. Merely passive patronage, subscriptions or donations, are of themselves little better than useless.

PRIZE LIST.

JUDGES.—S. Bloxidge, Warwick,
C. Howard, Biddenham, Bedford,
—. Robinson, Clifton Pastures, Bucks.

SHORTHORN CATTLE.

The best Bull, not less than two years old.

First prize of 7l, to Joseph Druce, Eynsham.

Second, of 3l., to J. Hutt, Water Eaton.

Commended.—H. Middleton, Cutteslowe, for Bull.

The best Bull, not more than two years old.

First prize of 5l., to J. H. Langston, M.P., Sarsden.

Second 3l, and extra prize of 5 gs., for best Bull under 15 months old, W. H. Hewer, Sevenhampton.

Highly Commended.—H. Hall, Barton, for Bull.

The best Cow of any age, in milk, having calved within six months of the day of exhibition.

First prize of 6l., to J. H. Langston, M.P.

Second, of 3l., to J. Hutt.

Commended.—Another of J. Hutt's, and the Duke of Marlborough's Cow.

The best Heifer, under three years old, in milk or in calf (to calve within four months of the day of exhibition).

First prize of 5l., and Champion Prize of 5 gs. as Best Horned animal in the show, to J. Hutt.

Second, of 3l., to J. K. Tombs, Langford.

Highly Commended.—J. H. Langston, for Heifer.

The best pair of Heifers, for breeding purposes, under 18 months old.

First prize of 5l., and second, of 3l, to J. H. Langston.

The best pair of Heifers, under 18 months old, the property of a tenant farmer, being a member of one of the Societies.

A Silver Cup, value 5l. 5s., to C. Clinch, Witney.

HORSES.

The best Brood Mare for Breeding Hunters.

A Silver Cup, value 5l. 5s, to H. Hall, Barton, for mare with two colts.

Commended.—J. Hutt's mare.

The best Cart Mare and Colt.

First prize of 5l, to H. J. Sheldon, Brailes.

Second, of 3l., to J. Hutt.

Commended.—J. Druces's mare.

SHEEP.

DOWNS.

The best Southdown Ram of any age.

First prize of 4l., to the Duke of Marlborough, Blenheim.

The best Down Shearling Ram of any breed, except Southdown or Oxfordshire Down.

First prize of 4l, to H. J. Sheldon.

The best Down Ram, not a shearling, of any breed, except Southdown or Oxfordshire Down.

First prize of 4l., to J. Hutt.

COTSWOLDS.

The best Long-woolled shearling Ram.

First prize of 4l., to W. Cother, of Middle Aston.

Second, 2l., to W. Cother.

The best Long-woolled Ram, not a shearling.

First prize of 4l., to W. Cother.

Second, 2l., W. Smith, Bibury.

OXFORDSHIRE DOWNS.

The best shearling Ram.

First prize of 4l., and extra prize of 3l. 3s. as the best Oxford Down ram, to W. Gillett, Brize Norton.

Second, 2l, to W. Gillett.

Highly Commended.—J. Druce, for two rams.

Commended.—H. L. Gaskell, Kiddington Hall, for ram.

The best Ram, not a shearling.

First prize of 4l., to J. Bryan, Southleigh.

Second, 2l., to S. Druce.

The best pen of five Breeding Long-woolled Ewes, with their Lambs.

First prize of 2l., to T. B. Browne, Hampden.

Second, 1l., W. Smith, Bibury.

The best pen of five Breeding Long-woolled shearling Ewes.

First prize of 2l., T. B. Browne.

Second, 1l., W. Smith.

The best pen of five Breeding Oxfordshire Down Ewes, with their Lambs.

First prize of 2l, to the Duke of Marlborough.

Second, 1l., to J. Walker, Begbroke Hill.

The best pen of five Oxfordshire shearling Ewes.

First prize of 2l, to G. Wallis, Hinton.

Second, 1l., to H. L Gaskell.

This Class *Highly Commended.*

PIGS.

The best Boar, not less than 12 Months or more than 3 Years.

Prize of 3 sovs. to J. Hutt.

The best Boar, not more than 12 Months.

Prize of 2 sovs. to W. Hewer; and extra prize of 2 gs. as best boar.

Highly commended.—J. Hutt's boar.

The best Sow, not more than 3 Years.

First prize of 2 sovs. to J. Hutt.

Second of 1 sov. to W. Hewer.

Highly commended.—J. Druce's sow.

IMPLEMENTS.

JUDGES.—J. P. Field, Shipton-on-Cherwell.
J. Hitchman, Little Milton, Oxon.

The best Collection of Implements.

First prize of 8 sovs. to J. S. Browning, Oxford.

Second of 3 sovs. to G. Billing, Hazeley.

Third of 1 sov. to Messrs. Beaumont, Reading.

T. Nalder, Wantage, for steam engine, thrashing machine, and corn screen, prize of £1 10s.

J. E. Kirby, Banbury, for two thrashing machines and steam engine, prize of £1 10s.

Joseph Gardner, Banbury, for chaff machine, prize of 1 sov.

This note was appended to the awards: "The judges of implements regret that they are unable to form a satisfactory opinion of the merits of some of the more important implements exhibited, such as the thrashing and the mowing and reaping machines, as they have had no opportunity of seeing them at work. The judges also desire to express their especial satisfaction with the very excellent collection of implements exhibited by Mr. Browning, of Oxford."

SUMMER GRAZING—THE GRAZING OF CATTLE.

The Grazing of Store Cattle.—This is a subject of great importance to every grazier. Every grazier has store cattle to depasture, but it is only the favoured ones who are in the occupation of lands qualified to fatten cattle, and which department is generally looked upon as being the more honourable and onerous of the two orders of grazing. The grazing of store cattle is adopted and pursued on almost every description of pasture lands—from the sweetest Devon pastures to the bleak northern Highlands, and the varieties of stock are from the results of experience so chosen as to be suited to each separate district, and to which it is always, with slight deviations, desirable to adhere. It is not so much the precise breed of stock that should be adhered to, but their similarity in size and constitution; the active roaming little animal for the mountain pasturage, the quiet docile one for the lowlands and general grazing lands.

"To be forewarned is to be forearmed," is a good old adage, and it applies with great truth and force in the grazing of *store cattle.* Unless store cattle are wintered well, it is at great risk to turn them to good pastures. The great secret of the safe and satisfactory grazing of store cattle is to prepare them for summer grazing by good winter keeping. Stock turned out of the yards in good store condition is a strong guarantee for their well-doing throughout the summer grazing. If their constitutions are impaired by hard living and bad treatment in the winter, the summer's grass will frequently destroy them. They are too weak to retain and appropriate the nutritive qualities of the grass they imbibe, a laxative habit of body ensues, and a gradual decay and ultimate death are the consequence. The liberal and good business-like treatment of store stock in the winter is, then, the true precursor of a safe, satisfactory, and profitable grazing season.

The grazier who has his stock to buy cannot be too careful in his selection. We have long had to contend with a mysterious disease, now commonly designated "the foot and mouth disease;" we have also another disease still more fatal in its course, known as the lung disease—"pleura pneumonia." These complaints are exceedingly enfeebling and detrimental, and often reduce the animal to a mere skeleton. The grazier cannot be too guarded; he must, if possible, avoid purchasing any of those partially-restored animals which have had the latter disease, and he would do well to be very cautious to see that those which have had the former are quite recovered, or he may thus introduce it upon his farm, to his great hurt. When these trying visitations will leave us, it is impossible to say; but so long as we have them to impede our successful grazing, we must use every caution against their introduction and propagation upon our farms. But we have them, and their effects are seen in the large accession of poor and enfeebled stock with which our markets and fairs abound: these animals of course require grazing, and it is to the grazing of this class of poor animals that I will first offer an observation or two.

In the grazing of poor and somewhat hazardous stock too much caution and judgment cannot be exercised. One of the best resources to strengthen and prepare such stock for better grazing is to preserve and provide for them a field of rough pasture grass, or a rough over-eaten eddish, so that they may be turned there during the day in the early spring, and be taken into the fold-yard again at night to be supplied with good dry food, either of straw and hay, and a ration of linseed-cake, or a feed of meal. In this way the animals will gradually recover condition, and be able to abide stronger keeping. Should, however, no such field or application be obtainable, then I would recommend that such stock be put into the most superior pastures first, and be there supplied with cake and corn in moderate quantity, suited to their state and condition, and as they improve and appear competent to sustain better and stronger pasturage, to be removed to it. The grazing of such stock is often attended with great hazard and difficulty; but where graziers have a gradation or succession of pasturage so as to rise gradually from worse to better, it is by no means an unprofitable mode of grazing; but inexperienced graziers should not attempt it, as it is by the exercise of clear and matured judgment that good results follow.

The grazing of ordinary store stock which have been "well wintered and come out in fair condition" is a matter of such general routine that it seems scarcely requisite in these improving and inquiring days to pen a few lines upon the subject; but there are so many varieties of such stock to be grazed that I shall attempt to say a few words in reference to each kind of stock in order, beginning with the youngest, or

Calves and Yearlings.—By calves I mean yeaned calves, or such as have been fully reared, and have now to draw their food from the fields alone. These of course may now be classed with the yearlings, and be treated as such in common grazing. I will first observe that it is unpardonable management not to have these prepared for good pasturage: nothing pays better for good management than these young animals, and few losses are more provoking than their loss—to see these interesting little steers and heifers dwindle away and die, when so little expense in food might have saved them. It is, however, pretty certain death if they are turned in a weakly or enfeebled state upon succulent, though sweet and nutritive pastures—such pastures as would have just suited them had they been properly wintered. The ordinary mode of grazing such animals is to run them thinly upon the sheep pastures during the summer, changing them according to circumstances, or as they seem to require it; sometimes from a good to an inferior pasture, and again from an inferior to better, or again from a highland to a lowland pasture, or *vice versa*, or any such salutary change that the farm will afford, or the judgment of the grazier may dictate. In the autumn an eddish or aftermath should be provided, to which they should be taken as the summer pastures begin to lose their freshness; and as the eddish begins to decay they should be supplied with a small allowance of cake daily. In this way young steers and heifers may be speedily brought to maturity, and I firmly believe in the long run they would amply repay the extra cost and attention.

Grazing Steers and Heifers.—These are generally "two-year-olds" and upwards. The same order of grazing would apply as for the above, but they would not necessarily require the best pasturage: they will, if properly wintered, thrive almost anywhere and upon any pasturage, if only enough of it. I look upon them as the purifiers or scavengers of the grazing lands, taking off all the rough pasturage, and finishing up what the sheep will inevitably leave. This rough grass ought, however, to be mown for them in daily portions. This class is often too much put upon by graziers. It would be very desirable to provide them with artificial food, in case of need, as it is most unprofitable management to let them shrink on the approach of winter; a few early mangolds or early cabbage, or even cake, would prevent this.

Cows and Breeding Animals.—The grazing and summer management of dairy cows gives ample scope for a separate paper, but I will endeavour to condense a few remarks. It is very unprofitable management to keep a herd of dairy cows on land not suited for the purpose; no pasture land which causes the animals to be of a laxative habit will do; nor will the cows thrive upon good pasturage with bad water. In the Lincolnshire marshes the grass is so succulent and the water so impregnated with saline matters, that dairying to any extent is abandoned. The cows from being too much purged, give but little milk, and that of poor quality. Cows require the most healthy and sweetest grasses, and the purest water to yield the greatest profit. The best and strongest pasture lands are unsuitable. These would rather fatten than enhance their milking properties. Pasture lands of good useful character abounding with pure water or a running stream, are the best suited for dairy cows. These should be laid in early, and a good pasture should be obtained before turning the cows upon them out of their winter quarters. It is certainly best to permit the herd to enjoy their pasture without the intrusion of other stock, but cows do very well along with a moderate quantity of sheep. In all cases, however, due regard must be paid to keep up a good pasture, not permitting it to grow coarse. Cows ought never to be allowed to travel far to or from pasture: it deprives them of much valuable milk, as many experiments have satisfactorily shown. Cows cannot be kept too quiet and contented: every exertion or drift or any disquietude causes a less yield of milk. In very wet or untoward seasons it is desirable to take them occasionally to the fold-yard, and give them straw or hay as dry food, and withhold any large supply of water. I need not say that good clean milking is absolutely necessary.

The Grazing of Breeding Stock.—Breeding cows and heifers do not require so much careful attention as for milking purposes. A few in each field, along with other kinds of stock, generally thrive admirably, and their calves are rather amused and benefited by the mixture. It is a point worthy of note, that all suckling farm stock require plenty of room: they love to roam in search of stray blades of grass apparently, and the thinner they are placed on the pastures, the better they thrive as a rule; the other kinds of stock being either store sheep or store cattle, so that the pasturage is kept in proper grazing order and fruitfulness. The kind of land best adapted for suckling purposes, is what is generally known as second-rate sheep land, *i. e.*, land of somewhat inferior quality, and not quite strong enough to fatten sheep. These pastures must also be supplied with good water, or they are not qualified for suckling pastures. It is a material point in suckling that the cow should yield her milk of an even or uniform quality, so that no damage shall arise to the calf; but if scouring or fever intervenes from bad water or bare pasturage, the cow's secretions are all wrong, and the calf soon suffers; care must, therefore, be given to provide a change of pasture rather than this should occur. The calves will seldom require much attention during the time of suckling.

The Incalved Cows and Heifers.—These may for the most part be classed and managed as store stock, and have the run of the pastures along with mixed stock. It is not desirable as a rule that they should become too fat. The produce in such case is generally a very small and delicate calf, hard to raise, and slow of growth. "A well grown calf is half raised." I am well aware that our first-class breeders resort to many practices differing from ordinary breeders, or their splendid animals would not breed at all; I am speaking of common breeding and common management, and would urge that every care should be taken to keep these animals in a fair healthy breeding state, and nothing more.

VALUE OF THE EARTH-WORM.—The common earth-worm, though apt to be despised and trodden on, is really a useful creature in its way. Mr. Knapp describes it as the natural manurer of the soil, consuming on the surface the softer parts of decayed vegetable matters, and conveying downwards the more woody fibres, which there moulder and fertilize. They perforate the earth in all directions, thus rendering it permeable by air and water, both indispensable to vegetable life. According to Mr. Darwin's mode of expression, they give a kind of under-tillage to the land, performing the same below ground that the spade does above for the garden, and the plough for arable soil. It is, in consequence, chiefly of the natural operations of worms that fields which have been overspread with lime, burnt marl, or cinders, become in process of time covered by a finely divided soil, fitted for the support of vegetation. This result, though usually attributed by farmers to the "working down" of these materials, is really due to the action of earth-worms, as may be seen in the innumerable *casts* of which the initial soil consists. These are obviously produced by the digestive proceedings of the worm, which take into their intestinal canal a large quantity of the soil in which they feed and burrow, and then reject it in the form of the so-called casts. "In this manner," says Mr. Darwin, "a field, manured with marl, has been covered, in the course of 80 years, with a bed of earth averaging 13 inches in thickness."—*From the Encyclopædia Britannica—New Edition.*

THE "PRESENT CIRCUMSTANCES" OF THE TURNIP.

The worthy alderman, when he did pay his long-promised visit to the country, could not disguise his astonishment at the importance his rural friends appeared to attach to a matter of which he had little or no previous cognizance. Everything seemed to depend on the turnips. If there was a refreshing shower, people heaved a grateful sigh, and joyfully exclaimed, "Ah ! how this will bring on the turnips !" On the other hand, if he ventured to observe that it was nice fine seasonable weather, his companions would shake their heads, and question whether they didn't "want a little more rain for the turnips ?" In his mind, this necessary vegetable was associated with a dark corner in his greengrocer's shop, or a small plot in his neighbour's garden. If he had a neck of mutton, or, by way of a change, boiled a leg, of course he expected to have turnips with it ; otherwise he really thought nothing about them. His experience was not sufficient to lead him on to any logical deduction. He would have been only the more surprised still to learn, as he might have done, that the connection between turnips and mutton was much closer than he had supposed, and that without the one he might find it difficult to ensure the other.

The closing discussion of the session, at the Farmers' Club, turned a good deal upon this. "What system of cultivation upon mixed soils will, under present circumstances, be found most profitable ?" put present circumstances into a very different position to what some political economists would have anticipated. There was not a word about the war. The name of the Emperor was never once mentioned. Our own chance of a share in the fight was not so much as hinted at. The turn out of a Conservative Government had not the slightest possible consideration. The very price of wheat had little or nothing to do with the business in hand. What could present circumstances mean ? There are patriots left still, who might twist such an opportunity into a restrictive duty or a sliding scale. There are cautious growers who would make the present depend no little on the future, and argue how long it might be safe to hold. There are present circumstances, in a word, which require all sorts of remodelling and adjustment, to place the farmer on a proper footing with other people.

But the members of the London Farmers' Club are proverbially practical men, and they discussed this subject much after their usual wont. The good citizen, on his return from his three weeks' sojourn, would have been quite at home here. Every thing still went on the turnips. The one great difficulty, in fact, of present circumstances is the turnips. Landlords may be exacting or capricious. Markets may be uncertain, and times be trying ; but the important question is, what are we to do for turnips ? The soil is sick of them. Some trace this back to the use of artificial manures. The most primitive, however, of Adam's gardeners are equally at fault. Of course there is a sequence to this, and the land is not only turnip sick, but clover sick, and barley sick. Like Paterfamilias at Christmas time, it has become weary of the monotonous rotation of cod and oyster sauce, roast beef, boiled turkey, and plum pudding. It wants a break from the four "course" system, and for the sake of a variety would rush even into the hazardous experiment of "removes," or be content with the more simple alternative of a chop and a chop to follow.

There is naturally one very pertinent query that arises here. If, as about everybody agreed, the four-course kind of cultivation was worn out, why did we not, as reasonable men, try another ? This is the very age of reliable experiment in matters agricultural. If there is anything really good, it is certain to eventually succeed. If there be a weak place, it will yet more readily be discovered. If so, the farmers, the land, and the crops are tired of the four courses, why, in the name of common sense, do we not try some other ? Say six, or five, or three, or two, or anything that will revive the turnip, or enable us to do without it. The law, however, exercises its full majesty at this point. There is scarcely a solicitor's-office in the kingdom but has a model form of agreement, telling the tenant how he shall farm and how he shall not. Twenty or thirty years since, if a man had taken a white corn crop out of its registered turn, we are not quite sure but that he might have been indictable for the felony. Or, if an agent had let a man a place, with liberty to do pretty much what he liked with it, he could only have been considered as qualifying himself for the nearest lunatic asylum, where, in accordance with the wisdom of the age, they flogged, starved, and terrified people once more into their senses.

But we are to be flogged, starved, and terrified into doing what is right no longer. The old truism rises before us again, at this stage of the journey. The interests of landlord and tenant are altogether identical; and if the two can only be induced to put anything like becoming faith in each other, there need be no further fear of robbing the land, or troubling lawyers to tell farmers how they shall do their own work. Depend upon it, a man who has anything like due confidence in the one he holds under, will be very careful ere he commits an injury that can scarcely be but mutual. "Under present circumstances," the owner of the soil has ample opportunity of selecting its occupier. And let him once get a good tenant, the more liberty of action he allows him the better for both of them. The red tape routine of "our form of lease" has gone by. The Farmers' Club discussion all tends to prove this. If a man goes indifferently about his business, there is no lawyer's office in England can do much to improve him. On the contrary, the old obsolete line and rule of this and that has cramped the energies of many a man ere now—ruined the turnips—spoilt the barley crop, and shortened the supply of victuals and drink for the people. We believe the question really comes to this. The majority of farmers do not alternate their systems simply because they are not permitted to do so. The report we give is worthy alike of the serious consideration of either class; and in Mr. Baker's much regretted absence we can only congratulate the Club on the selection of so good a man to fill his place. Whatever reading Mr. Baker himself might have given to so open a question, no one will quarrel with the strictly practical and useful interpretation Mr. Owen Wallis has put upon it.

LONDON, OR CENTRAL FARMERS' CLUB.

THE CULTIVATION OF MIXED SOILS.

The last monthly meeting previously to the usual adjournment took place on Monday evening, June 6. The question for discussion was, "What system of cultivation upon mixed soils will, under present circumstances, be found most profitable?"

Mr. Thomas, of Bletsoe, presided, supported by Messrs. Owen Wallis, H. Trethewy, J. Pain, James Wood, W. Fisher Hobbs, S. Skelton, L. A. Cousmaker, T. Congreve, J. Gray, R. Marsh, G. Smythies, J. Cressingham, J. Wood (Croydon), C. J. Brickwell, W. Heard, J. Beddoe, J. Hooker, J. S. King, F. J. Baines, J. Parkinson, J. C. Morton, T. Lyall, J. Maund, D. Reid, H. Gibbons, Pell, &c.

In the absence of Mr. Baker, of Writtle, from illness, the subject was introduced by Mr. Owen Wallis, of Overstone Grange, Northampton.

Mr. WALLIS, after expressing his regret at the cause of Mr. Baker's absence, and claiming the indulgence of the meeting for himself, as having unexpectedly been called upon to take up a question which was assigned to another member, proceeded as follows: The subject for discusssion as proposed by Mr. Baker is—"What system of cultivation upon mixed soils will, under present circumstances, be found most profitable?" This is by no means an easy question to answer; it is not easy to give an answer to it that will not be open to dispute. There can be no means of proving the superiority of one system over another, until they have been tried one against the other, under the same circumstances and conditions, for a number of years, and accurate accounts of the profit and loss of each faithfully recorded. This, however, has never been done, that I am aware of; and even if it had, other circumstances would have to be taken into account which might render the trial anything but conclusive. For instance, one system, though at first the most profitable, might contain within itself the seeds of its own destruction by exhausting the soil of certain properties essential to the production of healthy crops; while the other, by the non-exhaustion of those properties, might be continued for an indefinite period. The question, then, becomes one of opinion only, and not of positive proof. We may, however, from the information which our daily observations afford us, form pretty correct conclusions; and I think it is now very generally agreed, that on light soils the four-course system can no longer be defended, but that a more extended rotation must be adopted, in order that the turnip and seed crops may be sown less frequently, and by that means, it is hoped, grown more successfully. That this opinion is rapidly gaining ground is shown by previous discussions at this Club. It is also apparent from the proceedings of the Royal Agricultural Society of England; for in the schedule of prizes last issued is one of 20 sovereigns "for the best report on the modifications of the four-course rotation which modern improvements have rendered advisable." There is also another prize of 20 sovereigns "for the best report on the causes of the increasing difficulties of turnip cultivation, and the remedies." Every year, indeed, brings additional evidence of the necessity of a change; for, notwithstanding the assistance we have derived of late years by the use of artificial manures, the turnip crop is becoming rapidly more precarious, and is deteriorating both as to weight and quality. The difficulty as to the clover plant has long been felt; but, great as the loss from its failure has been, we have found less difficulty on the generality of farms in keeping our stock in summer without clover, than in winter without turnips. Now, however, that the double difficulty has come upon us, we have no alternative but to look about for a remedy. But there is not only this difficulty as to the green crops: there is an equal deficiency in the barley. On most of the farms with which I am acquainted that crop has fallen off nearly one-third in quantity, and the quality is inferior in comparison with former years. Six quarters per acre used to be obtained where four can only be got now, and this, too, with the land in a much higher state of cultivation than formerly. It used to be strong and reedy in the straw, and stand up till ripe; but now, it is no sooner a few inches high than it tumbles about in all directions; and, though in appearance a great crop, there is in reality nothing but a lot of soft weak straw and about two-thirds of a crop of inferior corn. Its effects upon the young clover seeds are very injurious. Those that live are very much weakened, and a great part of the plant is often lost altogether. It being, therefore, apparent that a more extended rotation of cropping must be adopted, we have to inquire what other is likely to prove the best substitute for the four-course one. On ordinary soils the extension of the white corn crops should, I think, depend upon the amount of artificial food, or purchased manures, used upon the farm, unless they are accompanied by a corresponding increase in the green crops. There can be neither reason nor justice in restricting one tenant, who uses these very liberally, to the same covenants as to cropping as you do another who either uses them sparingly, or not at all. A departure from one general rule may give some trouble to agents on large estates; but cases ought nevertheless to be dealt with on their own merits, and the good and the bad tenants no longer tied down by the same restrictions. For myself, I have nothing to complain of in this respect. Happily, I rent under a liberal and considerate landlord, whose agent is a large farmer and a thorough practical man of business; and using as I do large quantities of cake and meal in finishing off beasts in the stalls that have not got fat at grass, and also in preparing others for summer grazing, and using also a considerable quantity of bones, which I grind and dissolve on the farm, I have been allowed—indeed, I may say, compelled to extend my corn crops. I find that nothing bears high-farming so well as wheat and oats; and I therefore sow all my land, after turnips, mangolds, and fallow, with those cereals. My present course is: turnips or mangold; wheat; barley; seeds—composed of clover, trefoil, rib-grass, and rye-grass either mown or grazed one year; and then wheat again. I not only find that I can grow more wheat after turnips than I can barley, but that I can grow more barley and of much better quality after wheat than I can after turnips. I think, moreover, that this plan may with advantage be somewhat modified. There is considerable risk of mildew in wheat sown in the spring after turnips on deep land, subject to heavy crops of straw. I therefore think it advisable to sow such land with oats after the turnips, and take wheat after the oats: sowing seeds in the wheat. It may be supposed that this extension of crop will lead to an increase of couch-grass and other weeds. This need not be the case. Indeed, I think it capable of increased cleanliness. Before either the mangolds or turnips are allowed to be pulled up for storing, or stocked with sheep, the land ought to be carefully looked over, and any couch, docks, &c., that have escaped the previous cleaning or horse-hoeings ought to be forked out and carried off the land. And, again, after the first crop has been harvested, the stubbles ought to be subjected to the same process; and as no seeds have been sown with that crop, if required, it ought to be carefully hoed, in order to destroy any annual weeds that make their appearance. The second crop of corn may therefore be sown on land quite clean; and if only clean seeds are sown, there is no reason why it should become foul during the whole course. Upon this point, however, there is always great difficulty, for there is nothing worse to find than clean rye-grass and clover seeds. I have myself on several occasions gone nearly the whole round of the seed stands in Mark Lane, for two or three consecutive weeks, and have not found one clean sample of ryegrass; and many of the samples contained an immense quantity of couch seed. I cannot, however, blame the growers and vendors of these foul seeds so much as the sowers of them. If there was not a ready market for them they would cease to be produced; and if farmers would only sow clean seeds, those only would be supplied to them. I have now described the course of cropping I have adopted on my turnip soils; but as three-fifths of the land is under corn crops, it requires liberal dressings. In growing my turnip crops, I find it much better to use half a dressing of farmyard dung, with half a dressing of superphosphate, than a whole dressing of either alone. I also make a point of dressing nearly all my seeds with about eight loads of good farmyard dung per acre; and I know of no application of dung that is so profitable as this. If, however, I find I am likely to run short of manure for topdressing my seeds, I then grow some of my common turnips with superphosphate only. I generally draw off one-third or one-fourth of my turnips to be consumed in the yards, and eat the remainder on the land with sheep, which, in addition to their turnips, are well supplied with good chaff, and most of them have either cake or corn as well. For my lambing ewes I always sow about ten or twelve acres of rye, immediately after harvest, on land intended for turnips the following year. This, with mangold and chaff, keeps both the ewes and their lambs during the lambing season, till the latter are old enough to be drafted on the seeds or old pasture land. As soon as the sheep have finished the rye, I plough it up, and prepare for turnips, and generally get a better crop upon this land than upon any other part of the farm. And now as to farms where the self-supporting principle is to be relied upon. And here I think the course of cropping should be still further extended. When I was a very young farmer, the six-course rotation was in very general use in Northamptonshire; and I have long been of opinion that there never was so much corn and stock produced at so little cost as there was under that system. The course of cropping was—turnips, barley, seeds (two years), wheat, and barley. For this last crop the land was partly cleaned, and half a dressing of manure applied. The seeds were generally mown the first year and grazed the second. They were stocked chiefly with sheep, but partly also with young beasts, or the cart horses, to eat the ryegrass bents, and keep the pastures good for the sheep. On some land it is, I know, objected to sow ryegrass at all. On clay land it has generally been thought injurious; but I have sown it very frequently, mixed with white clover, trefoil, and ribgrass, and, as it is not allowed to run to seed, I have never seen any harm from it; and have grown quite as good wheat after it, or even better than after clover alone. It seems stronger in the straw, and falls less readily. It is one objection to having seeds down one year, that they are often much weakened by the previous crop of laid corn, and are only just getting strong, and capable of making a good pasture, at the time they must be ploughed up for wheat. By keeping down the seeds two years, the yearly cost of sowing is reduced very considerably. The quantity of live stock upon the land during the summer would be doubled, and many farms would be suitable for breeding both sheep and cattle where none are bred now; and with present and probable future prices of store stock, breeding has been, and will I think continue to be, one of the most profitable parts of a farmer's business. I am also decidedly of opinion that if cattle and horses were more generally pastured with sheep in the seed fields, we should hear much less of the serious losses of the latter, and to which the able paper of Mr. Marshall, of Riseholm, read at the Club last year, had special reference. By stocking the land heavily with sheep only, and by the liberal use of cake or corn with the seeds, you first poison the land with the dung of the sheep, and then poison the sheep by compelling them to eat the herbage produced. Disease and death are the natural consequences. In making this suggestion, I am aware that to some localities it is altogether inapplicable, because the farms are without subdivision-fences. In many others also, the hedges have been so weakened by annual cuttings, that they are no longer of use as fences against cattle and horses. With regard to this practice of cutting the hedges, I am decidedly of opinion that it must be discontinued, or there will not be a fence in the country that will even stop a sheep. To old hedges it is utter ruin; and it will very soon so weaken the young fences as to make them little better than old ones. I have therefore ceased on my own farm to cut them annually; nor do I think I shall soon be induced to resume the practice. I am aware that I have done so at the expense of that appearance of neatness and order that nicely-trimmed hedges impart to a farm; and at risk of being considered an untidy fellow by those who do not know my reasons for the change. There is no occasion, however, to allow hedges to grow to the size they did in former times; neither is there any necessity for wide open ditches by the side of them. These may all be safely drained with tiles, and filled in. The hedges should also be cut and laid once during the course of cropping, varying the sides on which you cut them. By so doing, the old wood left at one cutting will all be removed at the next, and the fences will thus be kept in a thriving condition, being full of young wood, and with a good thick bottom. I ought, perhaps, to apologize for this digression on the subject of hedges; but, as good ones are an essential condition to the course of cropping and the method of grazing the seeds which I am advocating, I do not see that I could very well omit these remarks. There is another important feature in reference to the six-course system of cropping when compared with the four-course, namely, that fewer horses and less manual labour is required; and that without any diminution of the corn-crops, one-half of the land being still devoted to them. I have heard lately of instances where wheat has been grown after two years' seeds, and the yield has been great beyond all former occasions. The *acreage* of the turnip-crop will of course be lessened, but I am inclined to think that the amount of food would not be so to any considerable extent. If a return to the six-course has the effect of restoring the turnip-crop—and I have great faith that it would—we should then have good crops of sound roots available for feeding stock, instead of the present miserable ones of diseased tubers; which, if not assisted with other and better food, would pine the stock confined upon them. There would also be the second year's seeds, upon which either the lambs at turnips or the stock ewes might be turned for three or four hours during the day; and they would, if rested in the autumn for the purpose, lessen the consumption of turnips considerably. In some districts of the Midland Counties it is the custom to take a crop of oats after the two-year-old seeds, and then wheat after the oats. This plan affords still greater facilities for wintering sheep stock on arable land. It is in other respects advantageous; for the very finest oats are produced in this way, 46lbs. per bushel being a common weight; and at the prices such corn has of late commanded, no crop has been so remunerative. On the deep rich loams, wheat of finer quality is obtained after oats than in any other way. Taking into account, then, the increased facilities for breeding, rearing, and feeding sheep and cattle; that one-half of the farm is still under corn crops; the decreased expenditure in respect of both horse and manual labour; the little occasion there will be, on soils of average fertility, for the use of artificial manure, or any great amount of artificial food; the more than probable resuscitation of the turnip and clover crops—I am quite of opinion that the six-course system, with two years' seeds, is, on soils adapted for it, on the whole the most profitable. This is no new theory; nor, as far as I am concerned, any new opinion. At a discussion of this Club, on a subject identical in principle, introduced by Mr. Thomas, of Lidlington, in December, 1856, I expressed the same views. Neither is there anything new in the system. I am simply recommending a recurrence to a practice much older than any of us. But I trust it has something better than age to recommend it. I do not expect, however, that either this, or any other system, will be universally adopted. There will always be so many circumstances affecting different localities, and even different farms in the same locality, such as soil, climate, the present subdivision of farms, and the special requirements of special districts, that no general rule can be laid down for universal adoption. Take my own case. It may fairly be asked—Why have not you adopted the system you so strongly advocate? For two reasons: First—On a farm of 400 acres, nearly the whole of which is arable, three-fourths of the old hedges have been grubbed up and new ones planted, and the latter are not yet of sufficient strength for the purpose. Secondly—Having another farm of nearly 500 acres, all old pasture; it is of more importance to me to provide fodder and roots for the winter, in order to keep cattle that either have been or are intended to be summer-grazed on this pasture land, than to increase my summer stock, on my arable farm. But for these considerations, I would at once adopt it, and may probably do so as soon as the first obstacle is removed. I have hitherto spoken of the system of cropping soils on which turnips can not only be grown, but consumed upon the land on which they grow. I will now make some observations on clay soils. Here, I am not quite so sanguine that the rotation can be so advantageously extended. Cleaning, in adverse seasons, is a more difficult operation, and less can be done by forks and hand-picking. Besides, there is no occasion to sow clover more frequently than once in eight years; beans being substituted alternately. It may be argued that peas may be used in the same way on light soils. They are, however, a most precarious crop, and more difficult to keep clean than any other. On heavy clay soils a summer fallow can scarcely be altogether dispensed with. These soils may, however, be made subservient to stock feeding to a considerable extent; and that, too, at a time of year when keeping is of the greatest value — namely, the spring. I sow one-half of my strong-land fallow with tares and mangolds. For the latter I prepare the land as far as possible in the autumn, getting the dung on and ploughed in during the winter, and drill the seed on the stale furrow. The surface having been well pulverized by the previous frosts, a fine seed-bed is obtained, and that, too, on a solid bottom, which is favourable to the growth of the plant. I use the tares for soiling my horses; and when they are carted off, the land is broken up, and, if required, summer-fallowed; or, if clean, it can be sown with coleseed for autumn sheep-feed. On the other half of the land intended for fallow, I drill in the wheat, the previous April, about six or seven pecks of Italian ryegrass per acre. At harvest, this is scarcely visible; but it grows rapidly when the wheat is removed, and by the following spring is a very good pasture. This, if assisted by mangold-wurtzel, will carry a considerable quantity of sheep stock till the end of May, or even later, when, if it contains any couch-grass, it should be broken up; and the drier the weather at the time, the better. I grow either barley or oats after the fallow and mangolds; then seeds or beans; and then wheat. This finishes my course on clay land; but, having only four fields, I have no choice of system. To those who think a more extended rotation desirable, I would recommend—1st, fallow, after tares or Italian ryegrass, as stated above; 2nd, oats or barley; 3rd, clover; 4th, wheat; 5th, beans and mangold, well manured, also hand and horse-hoed; and 6th, wheat or oats. Broad clover should be sown in one course, and white clover and trefoil the next; but if the land will not grow good clover thus often, I should not hesitate to sow ryegrass, white clover, and trefoil occasionally. Having now stated my views as to the most profitable course of cropping on both light and heavy soils, I will, if I am not trespassing too much upon your patience, conclude with some general observations applicable to both. In the first place, I by no means advocate extravagantly high farming. Land should be manured according to its quality, some soils bearing, and indeed requiring, much more than others. In the next place, I particularly deprecate a very heavy dressing for any one crop, excepting, perhaps, mangold-wurtzel, which can scarcely be overdone. At all other times, it is much more advantageous to apply lighter dressings, and more frequently. I do not, however, think that a liberal use of cake and corn has that tendency to produce superabundance of straw, and laid crops, that many imagine. On the contrary, I think it strengthens rather than lengthens the straw, and, beyond all doubt, greatly increases the yield of corn. I have seen the largest, and apparently the heaviest, crops of corn produced, after fallows, by heavy dressings of poor straw-yard dung; but they proved to be little better than the substance which had sustained them. One is almost led to the conclusion that there may be some analogy between the animal and vegetable kingdoms, and that, in both, like produces like. I am afraid that rather more err from under than over-dressing; and, with rent, rates, taxes, horse and manual labour, and other expenses the same on a bad crop as on a good one, it is the greatest error that can be committed. This principle is now very generally recognized; and really bad farming is now rarely met with. Whatever course of cropping has been proved most suitable to a district, that course should be pretty closely adhered to. I know of no greater folly than changing a system of cropping at every variation in the relative values of the different kinds of corn and other produce. I have generally seen that if one description of corn obtains a price higher than is its natural value in comparison with other kinds, that so many are tempted to sow it more largely than they otherwise would have done, that it becomes the cheapest instead of the dearest, and their object—that of obtaining the most profitable crop—is thus defeated. Vary cropping as much as you can, whether corn or green crop—that is, do not sow any one kind of either corn or root too frequently on the same spot. Let swede turnips, common turnips, and mangolds be each sown alternately. Vary the corn, pulse, and clovers in the same way; but do not vary the system of sowing white crops and green ones alternately, unless under special circumstances. Nothing is worse for a farm, and I believe for the occupier's pocket also, than what is termed the everlasting shift. Steady perseverance in a right course will, in the long run, be found the most profitable. In conclusion, I can only express my fears that I have not been able to throw any new light upon the subject; and also to express my deep regret that our old and valued friend who proposed it, is not present to give us the benefit of his larger knowledge and greater experience respecting it.

In reply to a question from Mr. Skelton as to the nature of the land of which he had been speaking,

Mr. **Wallis** said all except four fields was turnip soil.

Mr. J. **Pain** (Felmersham, Bedford) said he quite agreed with Mr. Wallis, that the system of growing turnips once in four years, on light land, was not a good one. If not yet abandoned, he believed it soon would be, as the cultivation came round too frequently for the turnips and for the clovers. On his own farm he had carried out a different system for the last three or four years. He could hardly get any turnips at all; and, therefore, he adopted a six-course shift, which he believed afforded a little better chance. What they called turnip land was quite sick of turnips; and the best remedy was, in many cases, to sow mangold instead of turnips.

Mr. **Skelton** enquired what was the general character of Mr. Pain's soil.

Mr. **Pain** said it was generally of a dry character. On what was formerly called good turnip land he could not now grow turnips as he used to do; and, therefore, he had substituted for them mangold, growing half of each, and that system had succeeded admirably. He could also grow good mangold on cold land. Though they did not use turnips in that case, they used tares or something else as a substitute on the fallows, then barley, beans, clover, and wheat; and wherever the land was in pretty good condition, he found no difficulty in getting two crops of wheat in six years. He was satisfied that the further they got the crops apart the better would be the result.

Mr. L. A. **Coussmaker** (Farnham) could corroborate what Mr. Pain had said in reference to the general failure of the turnip crop. He farmed principally heavy land; and, therefore, it was to such land that the remarks he had to make would be applicable. Still it was land on which he could grow very good turnips and swedes, though he might have a difficulty in feeding them off. He had farmed that land now for 20 years, having proceeded on the five-course system. When he first occupied it, it certainly was not much subject to turnip crops, but he found that he could not now produce the same quantity of turnips that he used to do. [A voice: "What is your rotation?"] Green crops, according to the nature of the land—turnips, or mangold, or tares, or whatever it might be; then after the green crop, a white corn crop—wheat, barley, or oats, according to circumstances; this was followed by a green crop, which was invariably put into beans, and the bean crop was put into wheat. He had, as he said before, gone on the five-course system; but only a portion of his land being adapted for turnips, he had called upon it oftener than he otherwise would have done. This land now declined producing turnips, so much so that this year he did not grow a single turnip. He had substituted globe mangold wurzel for swedes, and rape for early turnips. A friend of his having recommended him to manure his land with lime, he tried that a year or two ago, but he did not find it answer. The seed crop did not fail, but he only came upon that once in ten years. He could not grow a turnip crop once in five years. As regarded the trimming of hedges, which no doubt gave them a very neat appearance, he would observe that where quicks were grown there was no danger of deterioration; but, on the other hand, where quicks were not grown the stuff would die away: the result depended, in fact, on what the hedges were composed of (Hear, hear). With regard to autumnal cultivation, he entirely concurred in what had fallen from Mr. Wallis. He found that he could not grow tares as he used to do. In the course of his twenty years' farming, his farm had, he considered, been very much improved. He had manured it strongly; still he could not grow green crops, roots, or tares as he did formerly. Mangold wurzel was an exception; that did not deteriorate: if he put on plenty of dressing, he never found it to fail.

A Member: Do you use guano?

Mr. **Coussmaker** replied in the affirmative. He did not, however, use much artificial manure, because it was so dependent on the weather for its effects. If, after a strong application of guano, there was wet weather, it answered; on the other hand, if the weather were dry the land was rather deteriorated than improved. In high farming he did not find anything so reliable as farm-yard dung.

Mr. **Gray** (Courteen, Northampton) observed that Mr. Coussmaker had not clearly stated his five-course rotation; he appeared to him to have given only four crops.

Mr. **Coussmaker** said: First there was a green crop; this was succeeded by a white corn crop; then came another green crop—clover, or tares; the clover or tare crop he always put into beans, and after beans he grew wheat. He put on the whole of the manure on his clover lay for beans, and he took his wheat after his beans; he always grew a better crop of wheat in that way than he could produce on the clover lay.

Mr. G. **Smithies** (Marlow, Leintwardine) said: As regarded the clipping of fences, he quite agreed that it was possible to clip them every year, and keep them in good condition; but they should be clipped in the form of a wedge, and cut at the top. It was not easy to get a good quick fence; it took many years to do so. He felt personally very much obliged to Mr. Wallis for his able introduction, and he hoped it would induce landlords to allow good tenants to farm more in accordance with their own notions, instead of the notions of some lawyer in a small town, or, rather, of his great grandfather. (Laughter.) The time had certainly come when those who farmed high could not farm on the four-course system. He had himself been obliged to depart from that system on account of his barley having gone down, a loss of that kind being, in a stock country like his, a very serious matter indeed. He agreed with Mr. Wallis as to the necessity of removing as far as possible all the weeds and couch from the turnip crop in the autumn. In a wet climate, and with a light soil, there was sure to be a great deal of loss; and in the autumn, when the leaves were dry, much could be done to diminish that evil.

Mr. **Marsh** (Sandwich, Kent) remarked that in his county they did all they could to grub up hedges, considering them a great source of deterioration to arable fields. They were almost turnip-sick, but were not so badly off in that respect as some gentlemen who had spoken appeared to be; they could get very fair turnips once in eight years. It had been the practice of late by some farmers to substitute for clover giant sainfoin, which they found a very good change.

The **Chairman** inquired what kind of land Mr. Marsh referred to.

Mr. **Marsh**: Light chalk.

Mr. J. **Parkinson** (Bournemouth, Dorset,) was happy to find the prognostications of some old friends of his fulfilled, with regard to the failure of the four-course system, in the paper which Mr. Wallis had read that evening. The late Mr. Rogers, of Ranby, Notts, and the late Mr. Milward, of Hexgrave, were, in their time, as good farmers, and made as much money by farming, as almost any one in the country. Before the introduction of guano those gentlemen both said it was impossible to tell of what bulk or weight swede-turnips might be grown. Neither of them had grown a swede beyond its natural powers; and, though he had seen swedes on their farms weighing 16 or 17 lbs., he never saw a hollow one amongst them. The failure of the turnip-crop was, in his opinion, attributable to the use of guano. They couldn't eat their cake and have it; they couldn't force the crop at the first stage of growth, and have the same benefit at the end. So long as farmers were confined to the use of bones and farm-yard manure, the turnips never failed. He would appeal to old farmers present what was their recollection on this subject? Up to the year 1841, or even later, he himself certainly never saw anything like a hollow swede-turnip; and he had come to this conclusion, that the deterioration of this crop was owing to the introduction and application of guano, as well as by the four-course system which had very properly been denounced by Mr. Wallis. He would here observe that in a paper which was prepared by himself, under the direction of the late Mr. Milward, for the Agricultural Society, in 1841, and which, owing to some mistake on the part of the officials, was not published, the extension was carried rather further with regard to seeds than even Mr. Wallis advocated. There the seeds were carried to three years—a system under which both Mr. Rogers and Mr. Milward made fortunes.

Mr. J. **Pain**: How were the three crops consumed?

Mr. **Parkinson**: By sheep and young stock.

Mr. J. **Pain**: Were they mown or fed off?

Mr. **Parkinson** said they were always grazed. The system of which he was speaking was carried out on light land in Sherwood Forest. The rotation was as follows:—First, turnips; second, barley; third, red clover, mown; fourth, wheat; fifth, turnips; sixth, barley; seventh, eighth, and ninth, seeds, pastured; tenth, oats. The evil which Mr. Wallis mentioned in reference to wheat straw might be avoided in a great measure by the use of salt. He had himself derived great benefit from that for the last twenty years. On one occasion a neighbour of his applied guano to his wheat crop on the same kind of soil on which he himself applied salt. The contrast in the results in his own favour was quite marvellous: his neighbour's wheat was laid down while his was standing at harvest time, and he got nearly a quarter an acre more wheat of a very superior sample. He had also applied salt very beneficially in a variety of other cases. In wheat after oats there was a difficulty in keeping the wheat free from oats; at least that was his own experience. Ryegrass he had found on the strong red lands of Nottinghamshire anything but a failure: he had grown large crops of wheat after it. Mr. Wallis had spoken of good results to his wheat after an application of cake manure, observing that his corn stood well. That was not surprising, as such manure contained saline properties.

Mr. W. F. **Hobbs** (Boxsted, Essex) thought they were pretty well agreed that the usual mode of cultivating mixed soils, namely, the four-course system, was not the most profitable. He could not lay down any particular mode of cultivation for his own farms, because they consisted of very different soils, and had been remodelled rather with a view to letting than to the adoption of any particular system. It was evident, however, that the four-course system ought now to be considered out of date for mixed soil land; and he thought all wise landlords must be disposed to give increased facilities for cultivation when they saw intelligence and capital combined in their tenants, so as to enable the occupier to grow what the land was really capable of growing. It had often struck him that oleaginous crops might be produced to great advantage. He referred to rapeseed, and other crops producing oil. At the present day the inhabitants of this country who used moderator lamps were entirely dependent on foreign lands for Colza oil; and if England were to go to war with France, they would no doubt be compelled to pay for it double or treble what they paid at present. In travelling through France, he had, at this period of the year, observed immense tracts of land employed in the cultivation of rapeseed; and he believed that it was more profitable than wheat-crops. He thought that, occasionally—say once in eight or ten years—an oleaginous crop like rapeseed would be beneficial, both because it would destroy insects, and would in itself yield a good return. Another remark which he wished to make was, that he himself had frequently had three green crops in one season. That enabled him to keep a very large quantity of sheep; and he had found the plan useful. As soon as the wheat-crop was off, he sowed the land with vetches and winter oats, mixed. In the spring—say in April—the sheep having fed-off the vetches, he ploughed the land, and drilled-in about 3 cwt. of superphosphate, with early dwarf rapeseed. This came off by about the end of June or the first week in July, when there was quite time enough to sow any of the common turnips, or even the hybrid turnips. If the land were at all tenacious, after the rapeseed had been fed-off the first time, he horsehoed mustardseed in with the rape, which then came a second time, and was a most valuable food for a flock of ewes during the autumn, especially at the period when the tups were turned to them. That was, he knew, a considerable change in the rotation; and he had no wish to go further than to say, without laying down any absolute rule, that the crops must be varied in a manner suitable to different soils and climates, which would be very beneficial to tenants as well as landlords. One or two words with regard to the management of hedges. In his county, which was one of the driest counties in England, the hedges were perhaps the worst, the main cause being that the bank, and not the hedge, was the fence. The hedges ought to be planted, as was the case in the midland counties and in Lincolnshire, as near the ground as possible. He had planted a considerable quantity of quick during the last few years, and preferred trimming them in the wedge form, which was recommended by Mr. Smithies. He had no doubt that the use of salt was in many cases very advantageous; but he thought wide drilling had quite as much to do with the stiffening of straw as the application of salt. When wheat was drilled 10 or 12 inches wide, he had found the straw much heavier and standing much better than when a different mode of cultivation was pursued. He thought the application of salt, mixed with guano, tended very much to stiffen the straw.

Mr. **Skelton**: What is your opinion of the relative value of artificial manures?

Mr. **Hobbs** said he was of opinion that, for the wheat crop, especially on heavy land, guano mixed with salt was the most beneficial manure that could be applied, far surpassing any farmyard manure. He had used guano to the extent of from 2 to 4 cwt. per acre, during the last two years; and wherever he applied it on mangold-wurtzel, the result had not been satisfactory. For a climate where the rain-fall did not exceed 16 inches, he should recommend superphosphate for root-crops, instead of guano; but for wheat-crops, on heavy land, he had found nothing answer so well as guano mixed with salt.

Mr. **Maund** (Ty-mawr, Abergavenny) said: He farmed in a part of Wales where labour was as expensive perhaps as it was in any part of England. The system in general use there was the four-course system; and afterwhat he had heard, he thought the adoption of the six-course system, which appeared to yield a much better return, would be especially advantageous in a district where labour was so dear.

Mr. **Lyall** (Lincolnshire) said: The system advocated by Mr. Wallis was no doubt the most profitable in that gentleman's own district; but in his district there was a great deal of light land, which his experience tended to show might be cultivated much more profitably on the four-course system than on any other. On the Lincolnshire Wolds he found that, instead of artificial manures being so injurious to the turnip as they appeared to be elsewhere, farmers could not produce turnips without them. Last year he manured a field of 46 acres heavily with good cake manure, the quantity being, in fact, seven or eight cart-loads per acre. In addition to that, he put three loads of compost through the drill, mixed with 4 cwt. of nitro-phosphate or Odam's blood manure. This was divided into ten heaps. After having ascertained how many bushels it took to work through the field, they left a division of two drill ridges between the heaps to see what would be the effect without nitro-phosphate or Odam's blood manure; and where that division occurred there was not so much produce by half the quantity per acre as where the nitrate was used. Having commenced growing mangold wurzel only four years ago, he had found a gradual improvement, and his crop this year was almost ready for horse-hoeing. He used 2 cwt. of guano per acre, 3 cwt. of salt, and 3 cwt. of nitro-phosphate, in addition to farm-yard manure. He applied guano broadcast. His experience had led him to the conclusion that if they made a proper selection of seeds they not fear the deterioration of the turnip crop; and he was convinced that on the light wolds and heath lands of Lincolnshire the four-course system was the least expensive and the most profitable.

Mr. **Parkinson** enquired how long the four-course system had been in operation there?

Mr. **Lyall** said it began before his time.

In reply to a question from Mr. Hobbs,

Mr. **Lyall** said: The land of which he had been speaking was enclosed more than half a century ago.

Mr. **Parkinson** would be glad to hear some old Lincolnshire farmer state what had been the effect of using artificial manures on the heath lands of that county.

Mr. **Hooker** (of Horsley, Surrey) said the mode of farming adopted on stiff soils by some farmers in his county was this: They grew wheat alternately with green crops; first wheat, then tares, which are fed off by sheep, or cut up for the cattle after the tares are off; the ground is immediately ploughed up, and rape is sown, which is also fed off by sheep, to whom oilcake is given; the land is then ploughed for wheat; and this mode of cultivating is found very advantageous on stiff soils. Beans are sometimes sown instead of tares, and rape drilled in between the rows in the summer, and hoed in after the beans are harvested; this is fed off by sheep as before stated. He (Mr. Hooker) had seen turnips fail on land which had never received any artificial manure, and, in his opinion, the use of these manures had nothing to do with the failure of the turnip crop.

Mr. P. F. **Pell** (Scopwick, Sleaford, Lincolnshire) said for the last three or four years there had been great complaints in the part of the country with which he was connected of the failure of the turnip crop; and he knew that the great bulk of the farmers in the wolds and heaths said that the turnip was much more liable to decay than it used to be (Hear, hear.)

Mr. **Lyall** wished to know whether he was right in supposing that Mr. Wallis advocated the use of farm-yard dung and bones for turnips in preference to other manures.

Mr. **Wallis**: Yes.

Mr. **Lyall** said the reason why he had asked the question was, that in his own county an experiment was made last year which was a good deal talked about, and was attended with important results. Mr. Fowler, of Kirton-in-Lindsey, a gentleman who was a strong advocate for the use of bones, employed them in opposition to a dozen competitors who used other kinds of manure, and the result was that Mr. Fowler's crop was decidedly the worst of all.

The Chairman, in closing the discussion said he was a great advocate for the use of salt on light soils, or soils of a mixed character. He himself had used 4 or 5 cwt. per acre mixed with guano as an application for mangel, and also 3 or 4 cwt. of salt mixed in the same way for turnips, besides farm-yard manure; in fact he had used these dressings this season for both mangel and turnips. He should, however, have great hesitation in using so large a quantity of salt on strong or sticky land. He also agreed with much that had fallen from Mr. Wallis in reference to the annual cutting or trimming of hedges, for the reasons he has so well laid down; although he deprecated over-grown hedges.

Mr. O. Wallis, in replying, said he could not admit that the failure of the turnip crop was attributable to the use of artificial manures. Some of the worst tubers he had ever seen were on land where no artificial manure at all had been used. He believed the falling-off was owing to the abstraction of some important element from the soil by the too frequent growth of turnips; and, far from thinking that artificial manures had contributed to it, he was of opinion that the introduction of them had tended very much to keep the turnip afloat (Hear, hear.) His remarks with regard to straw applied not to wheat, but to barley. Every one was complaining of the failure of the barley crop, both in quantity and quality. Salt was very good for light land, but where it was applied to heavy clay soil he had seen the land become so tenacious that the crop was a failure for two or three years afterwards. The Lincolnshire wolds were not to be compared with the old arable districts of the country as regarded the turnip crop, having been broken up only within a period comparatively recent (Hear, hear.)

On the motion of Mr. Skelton, seconded by Mr. Pain, a vote of thanks was given to Mr. Wallis for the manner in which he had introduced the subject; and the proceedings terminated with the customary acknowledgment to the Chairman.

THE FUTURE COURSE OF THE TRADE OF THE NORTH AMERICAN WATERCOURSE.

British Columbia, and that portion of the British possessions to the east of the Rocky Mountains, and to the north of the Missouri river and Lake Superior, have not been adverted to in the previous articles. The omission was suggested by the circumstance of that district being non-producing, and likely to continue non-producing during the present century. That portion of Columbia watered by the Fraser river will no doubt become the permanent abode of an enterprising people, and agriculture will perhaps ultimately receive more attention than the arduous and uncertain occupation of washing and digging gold. Be that as it may, the Rocky Mountains impose an insuperable barrier to the transportation of cereal products either to the sources of the Bullpond river or the Missouri, and, therefore, the district of Columbia proper cannot possibly ever become tributary to the watercourse of the Mississippi and St. Lawrence rivers. Then the contiguous territory, that stretching to the Canadian borders, is too distant from a market; and, although its population, without much trouble, could grow twice or thrice the quantity of wheat and corn that they could consume, and in one year graze as many sheep and cattle as would supply their wants in raw material for a century at least, still their secluded pastoral life would have few attractions to the world without. It is nothing that within the territory numerous groups of Englishmen—or Scotchmen, as some would prefer to say—have been settled with their families for years, and are contented and happy, in the midst of plenty. These, after years of miserable isolation, in the miserable service of the Hudson Bay Company, trucking small articles to painted savages in exchange for skins, and subsisting occasionally on flesh which has been only thawed over a spirit lamp, in the dreary snow-house, have lost all recollection of the amenities of English life, and probably would feel uneasy if again placed within their reach. But to the English operative of the present day something more than mere bread and butter, and hodden gray and seal skin, are necessary to make his state comfortable and his home happy, and a region offering nothing more, and that little, for more than half the year, with the accompaniments of arctic storms and frosts and snow, will be religiously eschewed.

Even to the agriculturist, settlement in such a district would be accompanied with discouragements and privations of the most trying kind; and these have only to be pointed out to keep the present race of needy English farmers and rural labourers from putting foot either on the grassy plains and valleys of Lake Winnipeg or the Saskatchewan. In the first place, the great and peculiar scourge of that district—interested statements to the contrary notwithstanding—is the occasional descent of clouds of grasshoppers upon grain-bearing fields, and the consequent destruction of every vestige of the crop. Then again on the breaking of new soil, the unacclimated are subject to severe attacks of ague and intermittent fever, and the luxury of good drinking water is very rarely to be enjoyed. To be sure, these last can scarcely be said to be peculiar to the region, as the immigrant settler in Illinois is liable to contract ague in the neighbourhood even of a new-dug well, and Illinois prairie water is the poorest beverage in the water way that probably a man can take; but with respect to ague and intermittent fever, in the interior of the United States, observation seems to show, that inversely as the distance from the ocean is the liability to become infected with such disease. These are weighty reasons against the settlement of that portion of the British possessions, at the present time, but not the most weighty that may be urged.

In speaking of the border lands of the Saskatchewan and the Red River of the north, as promising at no distant period to yield large supplies of wheat and corn, it is scarcely necessary to remark, that the popular idea is, that these supplies would find their way to Europe. The fact is, such an anticipation recommends the new territory to the British public, and forms the groundwork of the condemnation of the Hudson Bay Company, and their obstructive and too frequently oppressive rule. But that anticipation is not likely to be ever realized. Even were the district or territory to become settled, it would only be when European prices were at an extreme famine range that grain could be moved so far with the chance of profit; and it is not likely, in our day at least, that anything worth the name of settlement will be made. The reason is very obvious. In the first place, no special advantage is to be derived from penetrating so far into the country, as it is quite possible to obtain land, or business of any kind, on as good terms as can be offered there, at a less remote distance from the seaboard; and with every other thing equal, the nearer the American farmer is, we shall say, to New York the better, as, in proportion to his nearness to that market, will his transportation charge be reduced, and his returns increased. If, for example, the New York market price of western wheat were one dollar a bushel, and that wheat could be produced on the same terms on Staten Island, in the immediate vicinity of New York, as on the Saskatchewan, then the Staten Island farmer would derive the full difference between the mere production cost and the market price, while the farmer on the Saskatchewan would probably find the market price insufficient to pay the mere cost of transport. Such being the case it is vain to speculate, at the present day, on the probability of immigrants passing Missouri, and Illinois, and Iowa, resolved to immolate themselves in the dark dreary north, where each man produces wheat and corn for his own domestic wants, patronises the home-spun manufactures of his wife and daughters, and is his own tailor and barber, and the maker of his own boots and shoes.

The importance of the principle here involved renders it necessary to be circumstantial, and, as near as can be, accurate in detail.

The British possessions, east of the Rocky Mountains, and west of Lake Superior, measure rather more than twelve degrees of longitude; say a thousand miles. Then the distance from the Red River to the Upper Mississippi, and from the Upper Mississippi to Chicago, must be taken into account. Altogether it would be within the mark to place the whole distance from the new territory to Chicago at about the same distance as Chicago, by lake and canal, is at present from New York; and, assuming that the new territory were provided with the necessary canals to the Mississippi, the cost of transportation from the new territory to Chicago might be assumed to be about the maximum transportation charge from Chicago, by lake and canal, to New York. Taking these estimates as the closest approximation that can be formed, the disadvantage of the new territory, in a merely commercial view, as compared with Illinois, in the New York market, appears to be as follows:—

I.		s.	d.
Western wheat in New York market per 60lbs.		4	0
Cost of wheat in Chicago per bush.	1s. 3d.		
Cost of transportation to New York, and charges	1s. 0d.		
		2	3
Advantages per bush. to the Illinois farmer in New York		1	9

II.		s.	d.
Western wheat in New York market per 60lbs.		4	0
Cost of wheat per 60lbs. at Lake Winnepeg	1s. 3d.		
Cost of transportation to Chicago	1s. 0d.		
Cost of transportation to New York	1s. 0d.		
		3	3
Advantages per bushel to the Lake Winnepeg farmer in New York		0	9

III.	s.	d.
Advantage to the Illinois farmer in New York	1	9
Advantage to the Winnepeg farmer in New York	0	9
Difference in favour of Illinois	1	0

But western wheat may be only worth sixty cents. a bushel in New York, at which price let us ascertain the different results—

I.		s.	d.
Western wheat in New York market per 60lbs.		2	6
Cost of wheat in Chicago per 60lbs.	1s. 3d.		
Cost of transportation to New York, and charges	1s. 0d.		
		2	3
Advantage to the Illinois farmer in New York		0	3

II.		s.	d.
Western wheat in New York market per 60lbs.		2	6
Cost of wheat at Lake Winnepeg per 60lbs.	1s. 3d.		
Cost of transportation to Chicago	1s. 0d.		
Cost of transportation to New York	1s. 0d.		
		3	3
Loss to the Winnepeg farmer per bushel in New York		0	9

If the communication were by the head of Lake Superior, and down the lakes without touching at Chicago, the figures would not be much varied, in consequence of the extra charges of one more canal, and that new canal would be the most costly of the whole. But is it likely, in the absence of settlement, that either of these great undertakings, the forming of a continuous watercourse from the Mississippi, and from the head of Lake Superior, to the base of the Rocky Mountains, will be entertained by the monied men of New York and Europe? and without the liberal support of these, nothing can be done. When settlement, in the course of ages, has been made, and capitalists have seen the expediency of so large outlays to facilitate the development of internal trade, it is more than probable the channels of the Mississippi will have received such extensions and improvements as they imperatively require; and with these perfected, there will be no chance whatever of Lake Superior ever becoming afterwards the great thoroughfare of western trade. The claims of the cold granite shores of Lake Superior, with their hungry soils, may therefore be set aside, both for the present and the future.

After these incontrovertible remarks, the absurdity of a Pacific railroad is at once manifest. There would be no people to profit by its use; and if people were ever tempted by grants of lands, and otherwise, it is not easy to understand what good they could accomplish. Even with wheat at famine rates in England, railroad transportation could be used only in a limited way; while in times of low prices, none but a local market could be found; and if all were producers, who would purchase?

Dismissing, therefore, the Columbia and Lake Superior districts, we turn to the proper subject of the present article—the future course of western trade.

As observed before, it is taken for granted throughout the United States and Canada, and Europe, that Chicago is the great outlet and mart of western trade. Railroads and canals have been formed on the faith of that assumption, and canals of enormous magnitude, as we shall see presently, are still projected, with the view of facilitating transportation in what is not only regarded as the right, but as the only channel. Strange to say, no voice has yet been raised to call in question that opinion; and St. Louis and New Orleans do not yet seem to think of the advantages of the Mississippi outlet. The conditions of the growth of Chicago trade have been adverted to before, but there is no accounting for the easy way in which the claims of the St. Lawrence outlet have received so general acceptation. Probably the prominent interest taken by the British

Government in the opening up of the trade of Canada, and the subsequent action of the New York State Legislature, in authorising the construction of the Erie canal as the complement of what the British Government had done, impressed the public of the United States and England with the belief that no other means existed of opening communication between the west and east.

But supposing that Canada had been included in the national domain of the United States, and Louisiana had been the dependency of the British crown, and that the British Government had done as much for the development of Louisiana trade as it has done for the trade of Canada, is it not likely that the Mississippi outlet would have occupied the same place precisely in the estimation of the public at the present time as the St. Lawrence outlet does? Then Canada, but for its climate, would have been cursed with slavery, and the attention of the United States and of the world would have been diverted from it, and the merchant flags of Europe would, of course, have floated on the Mississippi as they now do on the St. Lawrence, and St. Louis would have been in the position of Montreal.

Is there, then, any peculiar fitness in the St. Lawrence channel, when the circumstances under which it has been opened are brought to light, and any soundness in the popular schemes and theories which have in view the permanence of the present course of western trade? Above all, in an economical and progressive age, is it likely, if a really better channel exists ready made, that it will continue overlooked? Let its advantages but be known, and let the strategic origin and purpose of the St. Lawrence outlet be freely canvassed, and by virtue of a well-known law, the Mississippi will become the great western ocean highway.

It is not surprising, when so little attention has been given to the St. Lawrence outlet, that the different schemes of shortening distance between Chicago and New York and Montreal should be judged in a superficial and unsatisfactory way. The universal test employed is the mere distance to be saved; and, strange to say, there is no agreement in the different distance computations of different parties. Each party compute distances in their own way, and generally do not seem to hesitate to place the favoured scheme as far a-head as possible, and all opposing schemes well behind. Strange to say, the imposition appears to be unnoticed, and the scheme, no doubt, about which most untruth is told receives the greatest share of public favour. The following are official contradictions of the distance between Chicago and New York and Montreal:—

Colonel Mason's Report.	
I. Chicago to New York by Erie Canal..	1,425 miles.
McAlpine's Report.	
II. Chicago to New York by Erie Canal..	1,418 „
Horace Greely.	
III. Chicago to New York by Erie Canal..	1,596 „
McAlpine's Report.	
IV. Chicago to Montreal by Lake	1,278 „
Horace Greely.	
V. Chicago to Montreal by Lake	1,450 „

These figures form the basis of calculations as to what the transportation of a ton of produce will be from one point to another, and the least expensive route, or what necessarily is the same thing, the shortest distance from one point to another—say, from Chicago to Montreal—is held to be the best, and the one which the public should sustain. For example, McAlpine takes the distance between Chicago and Montreal at 1,278 miles, and rating transportation and charges at so much a mile, arrives at the conclusion that a ton of merchandise *can* be transported at nineteen shillings and sevenpence. Horace Greely, of the *New York Tribune*, takes the distance between the same places at 1,450 miles, and rating transportation and charges at so much a mile, arrives at the conclusion that a ton of merchandise *can* be transported at one pound three shillings and three pence. Obviously Mr. McAlpine is in the interest of Montreal—at the time of that report he was, in fact, in the pay of Montreal—while Horace Greely is as obviously on the other side. So much for the trustworthiness of American reports, and for the principle on which they are made.

But supposing that exception could not be taken to the figures, and agreement as to distances were established between conflicting interests, it must be obvious that a glaring fallacy underlies all applications of the distance test. Obviously the public are concerned only with the actual cost of transport, and are indifferent whether their goods are carried on a bee-line or on the circle; and as obviously the mere circumstance of one railroad, or canal, or water-course being at a shorter distance than another from a given point practically amounts to nothing, as the transportation charge must necessarily be the same. But further, perhaps the shorter distance of a new competing route, whether railroad, or canal, or water-course, would be attained at a greater outlay than if a less direct course were taken, and in such a case the shorter distance would do as little good to the proprietors of the stock as to the public.

With the exposure of this popular error, it becomes necessary to recur to the geography of the region of the lakes. Chicago stands at the head of the navigation of Lake Michigan. Glancing on the map from Chicago to New York and Montreal, and then tracing the line of water-course, scarcely a more tedious channel can be conceived. First of all, the peninsula of the State of Michigan has to be rounded, then Lake Erie entered, then Lake Ontario and then the St. Lawrence river; and if the destination is New York, the Erie Canal is entered either at Buffalo on Lake Erie, or at Oswego on Lake Ontario.

There is thus water communication between Chicago and New York on the one hand, and between Chicago and Montreal on the other; and the produce of Chicago may be shipped to either of these ports, and the imported or manufactured articles of these ports sent to Chicago. Chicago also, by virtue of its water communication with Montreal, may carry on an independent import and export trade with the world without; and when the Erie Canal has been enlarged, as is proposed, to the extent necessary to admit of the passage of sea-going vessels, cargoes of cereal products may then be shipped at Chicago, and conveyed direct to Liverpool by that route also.

Two years ago, the Chicago schooner, "Dean Richmond," made the voyage of the lakes and the St. Lawrence, and reached Liverpool in sixty-two days. Last year the channel schooner, "Madeira Pet," made the voyage to Montreal in thirty-five days, and the voyage from Montreal to Chicago in forty-five days—eighty days in all; and the return voyage to Liverpool in sixty-five days. The registered tonnage of the first-named vessel is 387 tons, and of the other 123 tons. Since then, numerous vessels have made the passage to and from the lower lakes, but without materially shortening the time of either the "Dean Richmond" or the "Madeira Pet."

From Chicago to the lower end of Lake Erie, at Buffalo, there are no canals nor locks, and therefore no limitation to the tonnage of sailing or steam vessels, but the depth of water on the east shore of the State of Michigan, known as the flats of the Detroit river, and Lake St. Clair: on these flats there is seldom more than ten feet of water, and sometimes barely that; but, notwithstanding, a large proportion of the carrying trade is done by vessels of from four to six hundred tons burthen, built long, with great breadth of beam, and the least possible depth of hold. The models of these large Buffalo-going vessels is usually good; but the building, in the absence of tree-nails and iron knees, is slim and not sufficient for the conveyance of dry cargoes, after the wear and tear of a few seasons. The practice is to lay these vessels up in harbours during the winter months—from November till May—as the peculiar construction of the keel for shallow water and general weakness render them unfit for outside coasting trade. In the summer season, it may be observed, these United States vessels have the privilege of the coasting trade of Canada, while Canadian vessels have no such privilege accorded them on the coast of the United States, although, by the treaty of reciprocity, the Federal Government engaged to press upon the New York State Legislature the justice of opening its internal and coasting trade to Canada vessels. So far as principle is concerned, the province of Canada has no reason to complain if United States vessels compete in its coasting trade, as it thereby reaps the benefit of lower freight; but the competition has hitherto pressed unduly on the Canadian lake shipowner, who, be it observed, is not in a position to trade outside of these inland waters, and can only employ his vessels during the six summer months. Practically, then, the United States shipowner is in a position—the principle of free trade notwithstanding—to drive away every Canadian lake shipowner to the wall, and strong remonstrances should be made at Washington by the British Government. Perhaps, however, the Canadian Government itself would have more influence at Washington; but, unhappily, the government of that province is invariably in the hands of men too much occupied with the sordid aggrandizement of themselves or partizans to give attention to such a subject.

Between Lake Erie and Lake Ontario the first canal—the Welland—is encountered, on the voyage downward from the upper lakes, and its capacity limits the size of vessels for the St. Lawrence river trade. The extreme length of lockage is one hundred and forty-five feet, the breadth twenty-six feet, and the average depth ten feet. The lockage on the St. Lawrence canals lower down is much the same, and vessels passing the one canal pass the others, and *vice versa.* Below Buffalo there is, therefore, a smaller class of vessels than some of those exclusively employed in the Buffalo and Chicago trade. These vessels, generally, are built to the full dimensions of the locks, and have a crowded unfinished look about the head, with straight stems, and no cutwater, and their capacity varies from fourteen to twenty thousand bushels wheat; a few vessels carry beyond the twenty thousand bushels, and that large carrying capacity is owing to the absence of fixed keels, and the use of a moveable keel, or centre-board, which is drawn up in passing through canals, and let down in deep water. In making the downward voyage, below the Welland canal, vessels usually avoid the canals by shooting the St. Lawrence rapids, and bringing up at Kingston, in the vicinity of Montreal. On the upward voyage, the river rapids have necessarily to be avoided in every case, and the canal towage becomes a tedious and expensive operation.

The shallowness of the water on the St. Clair flats has for some time occupied the attention of the United States Government, and considerable appropriations have been made. There is frequently, however, a considerable current setting down from Lake Huron, no doubt charged with sand and other residuum, which speedily replaces all that is dredged away. Still it is believed to be possible to deepen the channel permanently, and to keep it open; but in the present state of the Federal exchequer, no large outlays are likely for some time to be incurred. The deepening of the channel, it is scarcely necessary to remark, is calculated to promote the development of lake trade, as the employment of larger vessels would cheapen transportation. Western people insist that there should be sufficient depth of water for vessels of eight hundred or a thousand tons, and until that has been provided, the subject will no doubt be kept prominently before the public.

So soon as the flats are in a fair way of being deepened to the extent named, it is proposed to enlarge the Erie canal sufficiently to admit of all vessels passing over the flats continuing their voyage to New York, or to Liverpool direct, if that should be desired; but it is questionable whether so stupendous an undertaking will ever be carried out, the distance from Buffalo to Albany being stated at three hundred and fifty miles. Recently, a considerable enlargement of the Erie canal has been made, and small steam propellers will speedily take the place of horse tow boats. Several propellers are now employed, and, as is to be expected, the working expenses are curtailed, and the duration of the voyage shortened.

The American purpose of deeping the St. Clair flats, and rendering the Erie canal available for sea-going vessels, naturally excites uneasiness in Canada, and has led to the agitation of numerous counter schemes. The most prominent of these is the enlargement and deepening of the Welland and St. Lawrence canals to the extent necessary to pass vessels of eight hundred or a thousand tons. With that done, western produce would continue to have the choice of markets at New York or Montreal; while, with nothing done, and the American schemes carried out, the whole carrying trade would pass to Buffalo. New York sympathises with the enlargement of the Welland canal, as that done at the expense of Canada would confer as much benefit on Oswego as the deepening of the St. Clair flats would confer on Buffalo, and transportation is cheaper by Oswego in consequence of the saving of somewhere in the neighbourhood of one hundred and fifty miles of canal.

American sympathy with Canada stops, of course, at the enlargement of the Welland canal; but Canada would extend the principle of making the lake and river distance as long as possible, and the canal distance the least that could be, and purposes that western produce, in making for New York, should proceed by the Welland canal to the immediate neighbourhood of Montreal, where a short canal, of the same capacity as the Welland, would open into Lake Champlain, and another short canal open out from Lake Champlain into the Hudson river. The distance from Chicago to New York by this, the Welland, St. Lawrence, Caughnawagna, Champlain, and Hudson river routes, according to McAlpine, is one thousand six hundred and thirty-two miles; while the distance from Chicago to New York, by Oswego and the Erie canal, is one thousand four hundred and ten miles; and the distance from Chicago to New York, by Buffalo and the Erie canal, is one thousand four hundred and eighteen miles. But on the Caughnawagna route there would only be one hundred and sixty-seven miles of canal; while on the Oswego route there would be three hundred miles; and on the Buffalo route three hundred and fifty-three miles.

The expense of transportation on the lakes and the St. Laurence River, as compared with transportation on canals, makes the Canadian scheme show well on paper; but Canada is not strong enough to command the whole mastery of western trade, and to force the carrying into its own channel; and it is certain that were the Caughnawagna route open, the charges on the Erie canal would be brought down to the same level, while Americans at all times would unquestionably—from mere national vanity, if from nothing else—give the preference to their own carrying channels. For these reasons the Caughnawagna project is not likely to be sustained by monied men.

The present disadvantageous position of Canada in the carrying trade is very striking. Taking Chicago as the present great port of supply, and Buffalo and Oswego as the present great ports of shipment to New York, Canada, by virtue of the absence of the American coasting privilege, is precluded from carrying from the great port of supply to the great ports of shipment; and Canadians embarking in the western produce trade are necessitated, in great measure, to send their purchases on American bottoms to American ports, while, it may be, vessels their own personal property are lying unemployed in Chicago river. These Canada vessels carry lumber to Chicago, and trust to get grain cargoes to the Canada ports of the Welland district, or to Montreal; and it is scarcely necessary to remark that New York is much oftener the best market; and besides, is the port to which, in the long run, every kind of Western produce goes, be the market price what it may. Often, therefore, while American ships, are actively employed in the Buffalo and Oswego trade, and have besides the refusal of what is going to Canada, the Canada shipowner is at a loss what to do. As if to add insult to injury, there is no Court of Admiralty in Canada, and the maritime questions of the provinces are determined by American courts of law.

Some three years ago the Hon. John Young, of Montreal, in "Letters to the Hon. Francis Lemieux, Chief Commissioner of Public Works, and to the Citizens of Montreal," drew attention to the declining state of the Montreal and St. Lawrence river trade, and broached the subject of the Caughnawagna. The hon. member proceeds: "Let it be remembered that previous to 1849, before the United States Bonding Act came into operation, there was no exportation of cereals from Canada to the United States, or next to none. But what has been the amount of wheat and flour so exported since that date? Reducing wheat into flour, the amount will be found to be as follows:

In 1849	24,936	barrels.
1852	466,912	„
1854	762,575	„

Look now at the quantity of wheat and flour received by canal and river at Montreal:

In 1846	967,286	barrels.
1852	710,749	„
1854	594,394	„

These facts conclusively establish the practical superiority of the present routes by the United States over the Canadian route.

The total movement of property on the Erie Canal was, in 1853	4,000,000	tons.
On the St. Lawrence Canals, in 1853	561,000	„
Difference............	3,439,000	„
"The average receipts of vegetable food at tide-water in the Hudson River, reduced to barrels, was as near as possible, for the years 1851, 1852, and 1853	8,000,000	barrels
"The receipts by canal and river at Montreal for the same period was equal to	750,000	„
Difference	7,250,000	„

"The receipts of grain alone at Oswego and Buffalo during October and November of this year (1855) exceed 5,000,000 bushels, while the total receipts of all kinds of grain at Montreal, by river and canal, since the opening of navigation up to the 30th May (for the whole season!!), from both Canada West and the Western States, was only 1,300,000 bushels.

"The average exports for the years 1851, 1852, and 1853 of vegetable food at the port of New York was equal to	3,000,000	barrels.
"The average export of food at Quebec and Montreal for the same period was only	652,000	„
Difference	2,348,000	„

Mr. Young then proceeds to point out the disadvantages of Montreal as a port of shipment compared with New York. He states: "The freight of a barrel of flour in seven months—say, from 1st May till 1st of December, from Montreal and New York respectively, was, in the years here quoted as follows:

NEW YORK TO LIVERPOOL.

	s.	d.		s.	d.		s.	d.
In 1846, average	2	8	sterling; range, from	1	9	to	5	0
1847 ...	3	9	...	1	0	to	2	6
1848 ...	1	8	...	1	0	to	2	6
1849 ...	1	7½	...	0	6	to	2	3
1850 ...	1	3½	...	0	9	to	1	9
1851 ...	1	1¼	...	0	8	to	1	9
1852 ...	1	4¼	...	0	9	to	3	6
1853 ...	2	6	...	1	6	to	3	6
1854 ...	2	6	...	2	0	to	3	1

MONTREAL TO LIVERPOOL.

	s.	d.		s.	d.		s.	d.
In 1846, average	5	2	sterling; range, from	4	6	to	6	0
1847 ...	5	4	...	3	6	to	7	0
1848 ...	4	2	...	2	9	to	6	0
1849 ...	3	6	...	3	0	to	4	3
1850 ...	3	0½	...	2	6	to	3	9
1851 ...	2	11¾	...	2	4	to	3	7½
1852 ...	2	11½	...	2	7	to	4	0
1853 ...	4	3¼	...	3	9	to	5	9
1854 ...	3	2	...	2	0	to	3	9

Showing an average higher cost of 100 per cent. in these nine years in ocean freight by the Montreal route."

It is needless to follow Mr. Young further. Canada is not the place represented, and not the place the British public so much desire it should be. Whether looked at in an agricultural or produce-carrying view, its future is alike dark and dubious. The settler merely wastes his time and substance in a hopeless struggle against natural obstacles, if not against Nature altogether; while elsewhere—upon the prairie—he would reap benefits commensurate with the privations incidental to the life of the pioneer; and there are many reasons why produce should take the route of the Erie Canal in preference to the St. Lawrence river.

Besides those Canadians who follow the lead of Mr. Young in the advocacy of the enlargement of the canals and the opening of the Caughnawagna route, there are others who, with perhaps a better appreciation of the hopeless state into which Canada is fast drifting, strike an entirely new chord, and propose to divert Chicago trade past Buffalo and Oswego altogether. A glance at the map of Canada will show what this other, the unquestionable Canadian party, have in view. At the head of the Georgian Bay, the inlet of French river leads to lake Nipissing, and lake Nipissing is not far distant from the Ottawa river, and the Ottawa river enters into the St. Lawrence in the vicinity of Montreal. Supposing, then, that the navigation of French river and the Ottawa were improved, and a canal constructed to connect the two together, a short cut would be provided to Montreal; and to New York also, if the Caughnawagna route were open. The St. Clair flats and the Welland canal might then continue as they are, and the tedious navigation of the lower lakes be dispensed with altogether. But Mr. Young and his friends are not prepared to go so far; and a half-and-half measure — half American and half Canadian—receives the largest share of public favour. It is proposed not to take the truly Canadian Ottawa route, as that would be ungracious to our American neighbours, and oblige them hereafter to compete for Western trade, through the long length of the Buffalo branch of the Erie Canal, and put them wholly in the back ground, of course—the Welland Canal not being adapted to the passage of ships of a thousand tons as the Ottawa river would be—and a new canal would be opened from the Georgian Bay to Toronto or Peterborough, or some other paltry place. This proposal meets the views alike of the sapient Toronto people and of the American Boards of Trade, as then it would still be easy to pass produce by way of Buffalo or Oswego, and the full benefit of the shorter distance and cheaper transportation be secured. So far has this last-named scheme progressed, that the route has been surveyed and the work estimated by a Toronto and Chicago engineer, and their report published, with the subscription funds of the members of the Chicago Board of Trade. But from five to ten millions sterling will be required to open up this bastard route; and when the debentures arrive in London, it is more than likely London people will be on their guard.

ESSEX AGRICULTURAL ASSOCIATION.

MEETING AT COLCHESTER.

This new Society has now tested its strength beyond the perhaps somewhat flattering experiment of "an opening day." There is no cause, either, to be at all disappointed with the result. It is true that the Colchester Show tried on its general merits is by no means equal to that which inaugurated the Association's proceedings at Chelmsford. The great element of success, however, has been clearly attained. The whole county goes heartily with the undertaking. We remember no occasion better supported by the gentry, the farmers, and the town's people of a district than this gathering at Colchester. Every one appeared to take a direct interest in what was going on; and without any statistics at our elbow, we should say the attendance was far greater than that of the year preceding. The only unfavourable comparison was to be found amongst the exhibitors themselves. The entries were not so numerous, and in some classes, more especially, the character of what was sent not so high. In fact, the Colchester meeting suffered materially from the default of a gentleman who was still one of its chief supporters. Mr. Fisher Hobbs gave all the weight of his experience and his ability to the conduct of the show, but he did not add to its attractions by the entry of a single animal. The Herefords, the Alderneys, and the black pigs that did so much for Chelmsford, did nothing for Colchester. Mr. Oxley Parker, as one of the stewards, very properly referred to this at the dinner, characterising the delicacy which caused the withdrawal of the Boxted stock, as "a too squeamish attention to what some people might say." It is very certain that Mr. Hobbs would have done far more for the meeting by taking all the prizes he could, than by not trying for any. In a county exhibition, more particularly, it is the duty of every one to make it as good as possible. The lesson, otherwise, is only half-taught.

Fortunately some successful exhibitors were not so considerate, and Mr. Badham, Mr. Bramston, Mr. Upson, and others, were again in the field. The first named of these gentlemen had clearly the honours of the day, for, like its next door neighbour in Suffolk, the Essex Association depends in a great degree upon its entry of agricultural horses. Mr. Badham signalized himself much in the same way he did last season, and with very much the same materials. There is no prohibition to the same animal taking the first prize year after year, and consequently the famous Chester Emperor was once more on the ground. He did, too, precisely as heretofore, carrying away the first prize of the county class, and the all-England premium for the best draught-horse of any sort and from anywhere. The competition, however, was confined to the chesnuts, the most noted animal sent from "other parts" being Stearn's Boxer, a prize horse at the Windsor and Lewes meetings of the Royal Agricultural Society, as well as the winner of "no end of things" in his own district. But Boxer is getting in years, and the judges did not even commend him. Emperor, on the other hand, is just in his prime. He has gone on improving and thickening even since last year, and is now about the most handsome cart-horse ever seen. His "quality," as they call it, is extraordinary, and his head and forehand as beautiful as a picture. There were some who would not "have" Emperor on his first coming out, but they must be convinced by this. Mr. Badham was proportionately strong with his mares, with which he took the first and second prizes of their class. He then coupled them together, and made "the best pair of plough horses" one might fancy the judges ever looked over. We should wonderfully like to see them again at Warwick, with one of the prize ploughs behind them. Of great size, roomy, and weighty, they had still that fine look that the Bulmer teams are peculiarly remarkable for. The pig eye and the heavy sour head of the Suffolk seem also to have gone from amongst them. Perhaps the neatest specimen of what the Suffolk proper should be was Mr. Partridge's second prize stallion. Of a very compact frame, he had all the "roundness" and old Punch character, with the as proverbially plain frontispiece. Mr. Biddell sent a useful three-year-old filly of great substance, that took the cream of a small class; but her colour, a bad mealy chesnut, was all against her. As the prize list will tell, there were some other good names, such as those of Mr. Carter, Mr. Upson, and Mr. Sturgeon, in the catalogue; but on the whole the show of Suffolks was rather a rough sample, and there were stories flying about as to the breed not being kept quite so pure as it might be. One of the prize chesnuts, for instance, was said to be got by a Shire horse; and another, highly commended, was known to have a bay brother and a black mother! It will scarcely do to be "squeamish," as Mr. Parker would say, about "red to the hoof," or grey hairs, after this; and we were pleased to see the judges make the question of colour anything but a leading point.

For some reason or other we cannot give, that national institution, the thorough-bred horse, does not appear to flourish in Essex. At Chelmsford the prize was withheld from the four or five entered, while at Colchester in the county class there was only one shown, and the judges again returned the premium. An all-England offer was, however, made this year, for which Captain Barlow entered Footstool, and sent his well-known nag Revenge, or Young Recovery, as he is indifferently called. The judges, so far as they were concerned, passed this good-looking "gentleman," and the committee sanctioned the change. In the hunter class, Mr. Barker of Ingatestone sent three horses of much the same useful stamp, and that had each their several admirers, while Mr. Hutley's gay galloway was again the best hackney mare, although with stronger competition against her. Mr. Smith's chesnut gelding, however, in the next class was quite as neat as anything shown in this way, and too good apparently for the collar mark on his shoulder. With more competition amongst the stallions, this would have been a very creditable collection of riding-horses, although by no means wanting in the way of comparison between the good, bad, or indifferent.

The awards over the cattle were in some degree also but an echo of the Chelmsford edicts. This was more decidedly the case with the shorthorns, where Mr. Jonas Webb had the best bull, and Mr. Bramston the pick of the cow classes. With the experience of last year still fresh on him, Mr. Webb had May Duke fairly built in, but there was no danger on this occasion. The specimen here sent from Babraham is a good even beast, but not quite so kindly to handle, nor fully up to the style and character of the admirable animal that suffered from the sun-stroke at Chelmsford. We have no doubt they have something of a little higher form at home. The other first prize bull, Mr. Upson's Hastings, was the premier of his class last year, and the difference in size between him and the second prize here, although with only a few months between them, was very remarkable. But neither is of extraordinary excellence. Mr. Bramston must have a good herd of cows, for those he exhibits have generally the essentials of use and shape. But the strong class of the Shorthorns was the yearling heifers, five of which, out of the eleven exhibited, the judges honoured with more or less distinction. Mr. Clayden headed these with a young lady of high quality, called Luxury, and Mr. Pertwee followed with one noticeable not merely for her touch and symmetry, but yet more for her frightfully deformed feet. We never saw a beast more disfigured, and yet one would have thought a little proper care in paring might have kept the hoof to something like its shape. It will soon be too late now. Although not a great show of them, there was sufficient evidence to prove that the Durhams are fast making their way in Essex. In addition to those we have named, Mr. Christy of Roxwell, Mr. Sturgeon of Ockendon, Mr. Baker of Writtle, and Mr. Chaplain of Ridgewell, are paying more and more attention to their cultivation. The other breeds mostly resulted in no entries, but we did catch sight of one Suffolk bull, and one Alderney cow. It was now that Mr. Hobbs was found wanting.

Denied the like support, the pigs made up a very scratch lot; and Mr. Biddell and the Suffolks had in very way the best of the entry. The sheep, too, were a good deal "mixed;" and we came continually on such notifications as "No award"—"Prizes withheld," and "No competition." If not much talked of, we believe there was repeated disqualification for unfair shearing; and some of the "All England" animals were thus rejected. Naturally the picked sheep of the show was here—a grand Cotswold ram of Mr. Sexton's, that, all things considered, bore his public life remarkably well. Within the two days he went through some rather smart work. He was exhibited at the Norfolk Meeting at Swaffham, on Wednesday; started for the rail at four or five o'clock, or as soon as the stock left the ground—brought up to Colchester during the night—fairly and cleanly sheared at two o'clock in the morning, and in his place for the judges at half-past seven!

The Southdowns, although some of them highly bred enough, made no great sign. Mr. Bramston's shearling ram was certainly a very pretty symmetrical sheep, but of no size; while of the eight others entered, all we learn is that the second prize was withheld. However, Mr. Burch Western, the President of the Society, kindly gave two special prizes for sheep clipped, sheared, or trimmed, just as their owners chose; and for one of these Sir Barrett Lennard's was pronounced succcesful. It was a close thing between Messrs. Hine and Parson's long-woolled rams; and the one judge officiating called in the aid of two of his compeers, but eventually went for his own first fancy. Mr. Hine's ram, however, told very well in the handling.

An implement and a poultry show completed the encampment on the Barrack Field. The latter was remarkable for two points entirely corroborating the views we have always held on this subject, and a long way the first to advance. The Dorkings are still rising in repute—never was there a finer display of them—while the Cochins had at last a class refused to them. It is now admitted that they have done nothing but injury to our own native varieties, and that beyond their closeness as sitters they have no uses. Messrs. Caldwell and Hawkins, as the judges of implements, had fifty pounds to distribute at their discretion. It will be found that they appropriated this chiefly to "collections;" not a very demonstrative course of proceeding, after all. Would it not be better to signalize improvements or inventions more especially adapted to the district they are shown in? Ransomes and Sims, Garrett, Picksley and Sims, Coleman, Bentall, Smith and Ashby, Cambridge, Turner of Ipswich, Humphries, Smyth and Sons, Boby, and Wood and Sons, were associated with Messrs. Catchpool and Thompson, and other exhibitors more identified with the locality; but we believe that some of the upper houses evinced their usual disinclination to subject themselves to the scrutiny of the judges.

The dinner was a great improvement on the scramble at Chelmsford. It was far better, too, in the way of agricultural talk, which we must leave for the present to speak for itself.

PRIZES FOR STOCK.

HORSES.

JUDGES.—Professor Simonds, Royal Veterinary College, London,
Owen Wallis, of Overstone Grange, Northampton.

FOR AGRICULTURAL PURPOSES.

The best Stallion, having served not less than Twenty Mares in the County.

First prize of 15 sovs., and ALL ENGLAND SPECIAL PRIZE of 25 sovs., to G. D. Badham, Bulmer (Emperor).

Second of 8 sovs. to W. P. Partridge, Elmstead (Duke).

Commended.—Charles Sturgeon, South Ockendon (Sultan); W. P. Partridge (Albert); Scragg, Clacton (Prince); and P. B. Smith, Great Clacton (Dragon).

The best Entire Two-year-old Colt.

First prize of 10 sovs. to James Brown (Executors of), Felsted.

Second of 5 sovs. to John Upson, Rivenhall (Victory).

Highly commended.—Manfred Biddell, Playford.

The best Mare with Foal at foot.

First prize of 10 sovs. to G. D. Badham (Duchess).

Second of 5 sovs. to G. D. Badham (Dapper).

Commended.—George Simpson, St. Osyth, and G. H. Cant, Myland.

The best Three-year-old Filly.

First prize of 5 sovs. to Manfred Biddell.

Second of 3 sovs. to George Carter, Danbury (Daisy).

The best Two-year-old Filly.

First prize of 5 sovs. to George Carter (Scott).

Second of 3 sovs. to G. H. Cant, Myland.

The best Yearling Colt or Filly.

First prize of 5 sovs. to G. D. Badham.

Second of 3 sovs. to W. Partridge, sen., Herkesley.

Commended.—James Toplis, Boxted, for two colts, and W. Plummer, Castle Hedingham.

The best pair of Plough Horses or Mares.

The Prize of 5 sovs. to G. D. Badham (Duchess and Dapper).

Highly commended.—George Simpson.

EXTRA STOCK.

Highly commended.—A Constable, Wormingford, for black Entire Stallion; John Quilter, Feering, for Norfolk gelding; and William Parson, Boxted, for working Suffolk.

Commended.—Thomas Ward, Elmstead, for two Suffolk Mares and Foals, and D. C. Alston, Little Bromley, for chestnut Cart Mare.

RIDING AND COACHING HORSES.

JUDGES.—W. Boulnois, Guestingthorpe, Sudbury,
H. Corbet, Farmers' Club, Bridge-street, London.

The best Thorough-bred Entire Horse.

The prize of 15 sovs.—Withheld, *not sufficient merit.*

The best Weight-carrying Mare, regularly Hunted in Essex.

The prize of 5 sovs. to J. T. L. Hallum, Wormingford.

The best Weight-carrying Hunting Gelding.

The prize of 5 sovs. to Francis Barker, Ingatestone.

The best Hackney Mare.

The prize of 5 sovs. to J. F. Hutley, Braxted.

Commended.—Geo. Matson, East Mersea, and J. T. L. Hallum.

The best Gelding.

The prize of 5 sovs. to Benjamin Smith, Boxted.

The best Brood Mare, with Foal at foot.

The prize of 5 sovs. to Henry Parson, Langham, with foal by the Unfortunate Youth.

The best Thorough-bred Entire Horse. (OPEN TO ALL ENGLAND.)

The prize of 25 sovs. to Frederick Barlow, Hasketon (Recovery Junior.)

EXTRA STOCK.

Commended.—H. Hamblin, Colchester, for Entire two-year-old bay Colt, and J. R. Kirby, Hill-house, St. Osyth, for brown Hackney Mare.

CATTLE.

JUDGES.—T. Crisp, Butley Abbey, Woodbridge,
W. Torr, Aylesby Manor, Grimsby.

Best pure-bred Shorthorn Bull.

First prize of 10 sovs. to James Upson, Rivenhall (Hastings).

Second of 5 sovs. to Charles Sturgeon (Stentor).

Best Bull of any other breed.

The prize of 5 sovs. to J. Gurdon Rebow, Wivenhoe Park (Suffolk).

Best Two-year-old pure-bred Shorthorn Bull.

The prize of 5 sovs. to James Christy, jun., Roxwell (Victor).

Best Yearling pure-bred Shorthorn Bull.

First prize of 5 sovs. to John Clayden, Littlebury (Duke Humphrey).

Second of 3 sovs. to Charles Sturgeon (Sancho).

Commended.—James Christy.

Best pure-bred Shorthorn Cow.

First prize of 5 sovs. to T. W. Bramston, M.P., Skreens, Roxwell (Crimea).

Second of 3 sovs. to Richard R. Willis, Kelvedon.

Best Cow of any other pure breed.

The prize of 4 sovs. to Chas. Darling, Colchester (Alderney).

Best pure-bred Shorthorn Heifer.

First prize of 5 sovs. to T. W. Bramston, M.P. (Proserpine).

Second of 3 sovs. to S. B. Ruggles Brise, Finchingfield.

Best pure-bred Shorthorn Yearling Heifer.

First prize of 5 sovs. to John Clayden (Luxury).

Second of 3 sovs. to James Pertwee.

Commended.—James Upson, Rivenhall; Robert Baker, Write; and J. Richard Chaplin, Ridgewell.

Best fat Ox or Steer, not exceeding Three Years old.

The prize of five sovs. to T. W. Bramston, M.P.

Best fat Cow or Heifer.

First prize of 3 sovs. to James Upson (Shorthorn).

Second of 2 sovs. to James Barker, Ramsey.

Best Cow or Heifer for Dairy Purposes.

First prize of 3 sovs. to James Upson.

Second of 9 sovs. to Edward Haiden, Halstead (Shorthorn).

Best pure-bred Shorthorn Heifer, not exceeding Twelve Months, and not under Six Months.

The prize of 2 sovs. to James Christy, jun.

Best pure-bred Shorthorn Bull, not exceeding Twelve Months and not under Six Months.

The prize of 2 sovs. to Joseph Root, Tollesbury.

SPECIAL PRIZE OF 15 SOVS. (OPEN TO ALL ENGLAND).

Best Bull of any age of a pure breed.

The prize of 15 sovs. to Jonas Webb, Babraham (May Duke).

SHEEP.

JUDGE.—E. Pope, Maiden Newton, Great Toller, Dorset.

Best Southdown Ram of any age.

First prize of 5 sovs. to Onley Savill Onley, Stisted.

Second of 2 sovs. to T. W. Bramston.

Best Ram of any other Short-wool breed.

First prize of 5 sovs. to Peter Portway, Great Sampford (Norfolk and Down).

Second of 2 sovs. to Peter Portway.

Best Long-wool Ram, of any age.

First prize of 5 sovs. to Wm. Parson, Boxted.

Second of 2 sovs. to John Hine, Epping.

Best Yearling Southdown Ram.

First prize of 5 sovs. to T. W. Bramston, M.P.

Second of 2 sovs.—Withheld.

Best Shearling Short-wool Ram, of any other breed.

No awards.

Best Shearling Long-wool Ram.

First prize of 5 sovs. to G. B. Ward, Great Bentley.

Second of 2 sovs.—Withheld.

Best pen of Five Shearling pure Down Ewes.

First prize of 5 sovs. to G. B. Ward.

Second of 2 sovs. to G. B. Ward.

Best pen of Five Ewes, of any kind, with their Lambs.

First prize of 5 sovs. to J. Gurdon Rebow.

Second of 2 sovs. to T. W. Bramston, M.P.

Best pen of Five Fat Shearling Long-wool Wethers.

No competition.

Best pen of Five fat Shearling Long-wool Wethers.
First prize of 3 sovs. to S. Q. Viall, Baythorn Hall.
Second of 2 sovs. to W. Thompson, jun., Thorpe.

SPECIAL PRIZE of 10 sovs. (open to all England) for the Best Ram of any age, of a pure breed, and the President's prize of 5 sovs., for the best Long-woolled Ram of any age, without restrictions as to clipping, to Mumford Sexton, Cockfield (Cotswold).

THE PRESIDENT'S PRIZE of 5 sovs. for the best Short-woolled Ram, of any age, without restrictions as to clipping, to Sir T. Barrett Lennard, Bart., Aveley (Southdown).

EXTRA STOCK.

Commended.—J. Gurdon Rebow, for Five Shearling Down Ewes.

PIGS.

Judge.—E. Pope, Maiden Newton.

The Best Boar.
First prize of 5 sovs. to Manfred Biddell (Suffolk).
Second of 2 sovs. to Alfred Tuck, Ingatestone (Berkshire).

Best Boar, not exceeding Twelve Months old.
First prize of 4 sovs. to S. A. Bridge, Halstead.
Second of 2 sovs. to John Claydon.

Best Sow in Pig.
First prize of 4 sovs. to Manfred Biddell (Suffolk).
Second of 2 sovs. to G. D. Badham.

Best Sow with her Pigs.
First prize of 4 sovs. to John Clayden (improved Essex), 7 pigs.
Second of 2 sovs. to Alfred Tuck (Berkshire), 8 pigs.

Best pen of Three Sow Pigs under Nine Months old.
First prize of 4 sovs. to Manfred Biddell (Suffolk).
Second of 2 sovs. to G. D. Badham.

EXTRA STOCK.

The prize of 1 sov. to B. Wenden, Great Bromley, for Sow and Ten Pigs.

Highly commended.—J. Cutts, of Little Bardfield Hall, for fat Hog.

WOOL.

Judges.—J. Cooke, Colchester.
S. Unwin, Colchester.

Best Ten Fleeces of Southdown Wool.
The prize of 2 sovs. to J. Gurdon Rebow.
Highly commended.—G. B. Ward; T. W. Brampston, M.P.; and J. Oxley Parker, Woodham Mortimer Place.

Best Ten Fleeces of any other Short Wool.
The prize of 2 sovs. to Daniel Green, Berechurch.

Best Ten Fleeces of Half-bred Wool.
The prize of 2 sovs. to W. Thompson, jun., Thorpe.

PRIZES FOR IMPLEMENTS.

Judges.—H. B Caldwell, Lackham House, Chippenham.
T. Hawkins, Bentley Hall, Ipswich.

The prize of 20 sovs. to Catchpool and Thompson, Colchester, for the best collection of implements.

The prize of 10 sovs. to R. Coleman, Chelmsford, for the second best collection of implements.

The prize of 5 sovs. to Wood and Son, Stowmarket, for the third best general collection of implements.

Thd prize of 10 sovs. to — Humphries, Pershore, for his adaptation of a new Smutter to his Combined Thrashing Machine.

The prize of 5 sovs. to Robert Boby, Bury St. Edmund's (for the best improvement in any known implement) for his Corn Screen.

Highly commended.—E. H. Benthall, Heybridge, for Oilcake Mill.

Mr. Bailey, of Mount-street, London, was the Judge of Poultry.

THE DINNER

Took place at the Corn Exchange; the company numbering about 250. The chair was occupied by the President, T. Burch Western, Esq., of Felix Hall, supported by the Right Hon. William Beresford, M.P., Sir Claude C. de Crespigny, Bart., Sir C. C. Smith, Bart., the Mayor of Colchester (Arthur L. Laing, Esq.); Colonel H. K. Blomfield, Commandant of the Colchester Garrison; Charles Du Cane, Esq., M.P., T. W. Bramston, Esq., M.P.; J. W. Perry-Watlington, Esq., M.P., T. J. Miller, Esq., M.P., P. O. Papillon, Esq., M.P., T. Sutton Western, Esq., M.P., A. Steuart, Esq., the Rev. W. Y. Smythies, Lieut.-Colonel S. B. Ruggles Brise, Major Skinner, R.A., and Messrs. Charles Gray Round, C. T. Tower, W. M. Tufnell, J. Gordon-Rebow, Carleton Smythies, S. G. Cooke, W. Fisher Hobbs, J. Oxley Parker, R. S. Nunn, G. D. Badham, Jonas Webb, N. G. Barthropp, T. Crisp, John Clayden, T. J. Hallum, J. Christy, jun., W. A. Warwick, A. Garrad, Corbet, Professor Simonds, C. Sturgeon, J. Hutley, Eke, &c.

After the customary loyal and patriotic toasts, the Chairman gave "Success to the Society." In doing so, he said their exhibition was a very excellent one; and although the entries of stock were not so numerous as last year, yet the animals shown were generally of a very superior description; and he was told that in some respects it was even a better show than last year. The object of the association was the advancement of agriculture, and it might be suggested that beyond the two branches to which they had hitherto confined themselves they should include those other branches which were embraced by similar societies in neighbouring counties. Whatever might be the case in future, he thought the committee bad shown a wise discretion in confining the Society in the first instance to its present limits. This county was differently situated to many others in having a large number of local associations, which directed their efforts to those other objects; and as long as they each followed their particular course, they might continue to act harmoniously together, and be a mutual aid and support to each other.

Mr. Bramston, M.P., in proposing the health of the President, had much pleasure in congratulating them on the success which had attended this their second meeting, and he thought those gentlemen with whom originated the idea of having an Essex Agricultural Society had reason to be proud of the success which had attended their suggestion. He held it to be an anomaly for a county like Essex—one of the most important agricultural counties of England—to be without an Agricultural Society, while other counties (many of which did not possess a tithe of the agricultural character that Essex possessed) had this desideratum. Therefore, he held that to those who originated this Society the county was deeply indebted. He had experienced great pleasure in attending the meeting that day, and in witnessing the exhibition of stock. There were many fine animals which he delighted to see; but he was quite as much pleased to observe a number of bad animals as he was with the very fine exhibition of animal perfection. The great advantage of these meetings, he thought, was that they found a sort of competitive examination, where gentlemen who possess animals are compelled to acknowledge what the true merits of their animals are. Whether it be the bailiff or the squire—the small or the large farmer—the tenant or the landowner, a breeder is in the habit of looking at the animals he rears simply with regard to its own proportions and its pedigree, and then he thinks it to be unequalled in the world. Now such a person should be brought to understand the proper qualities of the animal he ought to breed; and threfore he held it to be a great advantage for meetings to be held, through the instrumentality of such societies as these, where bad animals could stand in contrast to the stock exhibited by the leviathans of agricultural breeding, such as Mr. Badham, Mr. Fisher Hobbs, and Mr. Jonas Webb. The defects that had become apparent by this trial induced the exhibitors of inferior stock to take the earliest opportunity of sending their animals to the shambles, and introducing better blood into their stock, so that on future occasions they might be able to produce animals which judges would be more likely to appreciate, and which would stand a better chance of obtaining prizes.

Mr. Rebow, in returning thanks for the vice-presidents, said that his friend Mr. Bramston had stated that it was an uneven exhibition of stock. In this he quite agreed, and he thought Mr. Bramston's observations might be attended with very great advantage. Every grower—whether it be of horses, bullocks, sheep, or cocks and hens—is apt to be conceited in hearing the crow of the animal in his own yard; but the great test is competitive examination. And in exhibitions of this nature they had the best test as to the qualities of various animals; and in meetings such as these they were able to ascertain the advantages and wants of agriculture. Now he hoped he should not be considered unwarrantably proud of his own locality when he stated that in his part of the county they need not bow their heads to anyone in regard to arable farming. He believed he might safely say that in that corner of Essex they grew the finest samples of corn, and they understood the growth of corn as well as the agriculturists of any other part of England. Within comparatively few years the laws of England had been changed in reference to the advantages of growing corn, and therefore more general attention has been called to another branch of agriculture, with a view to ascertain whether it is as profitable as the growth of corn, It was from that cause that Essex farmers had turned their attention to the growth of stock more recently than the farmers of any other part of England. There was another reason. As Mr. Western had observed, the climate of this part of England is peculiarly suitable to the growth of corn, and not peculiarly suited to the growth of animals. Now it is, of course, known to every agriculturist that a dry climate must be advantageous to the growth of corn. Well, in the year 1858 the downfall of rain in this part of Essex was only 14 inches, while in the West and North of England it was between 60 and 70 inches. From this it must be apparent that this part of the country is better suited to the growth of corn than the growth of stock; and it was on that account that few persons in the eastern part of Essex had given their attention to the growth of stock. He referred more particularly to sheep, which require a large extent of grass cultivation. He believed he was within bounds when he said that within 20 miles of this town not half-a-dozen flocks were kept (cries of No, no). Well, he should be happy to be corrected; but, at all events, they had a smaller exhibition of sheep than shows in many other parts of the country would secure; but the show of stock taken as a whole was one which they need not be ashamed to exhibit in any part of the United Kingdom. There was one part of farm produce to which, perhaps, he gave more attention than to any other—namely, the growth of wool. He was happy to say that that day he had succeeded in gaining the first prize. As Mr. Sutton Western had stated, he was a successful exhibitor of wool at the Hyde Park exhibition in 1851; and he hoped to be successful at the Royal Society's meeting at Warwick a fortnight hence.

Mr. Corbet, on behalf of his brother Judges, had to thank the town of Colchester for a very hearty welcome, and a most agreeable day's work. Unhappily his authority did not extend to the magnificent qualities of their Suffolk horses, or the delicate touch of their shorthorn cattle; but in his own department he met with some excellent illustrations of that somewhat conventional term, a clever hack. He only hoped they would judge the judges and criticise the critics in the same way that they had dealt with the high-bred animals in the show-yard—

> "Be to their faults a little blind;
> Be to their virtues very kind;"

and, if possible, give them a "commendation."

Mr. Unwin, as one of the Judges of Wool, also returned thanks. There were six competitors in the first class, all of them having some considerable degree of merit; and the second lot pressed so closely upon the heels of that which received the prize that his colleague and himself regretted that there was not a second prize to award. It was so beautifully got up; its condition, colour, and quality were so good; and it possessed so completely the qualities desired by wool-staplers, that they considered it entitled to their high commendation. An ordinary grazier could not be expected to compete with a gentleman like Mr. Rebow, who had the advantage of a large extent of grass land; but, by clipping at the precise stage of maturity, and closely attending to the necessary washing, a very great and general improvement might be effected. He must give Essex the credit of growing some of the best wool produced in the United Kingdom; yet, such was the careless manner in which it was got up, it by no means held its proper position in the manufacturing market. He did not mention it as matter of complaint, but as a point to which it was their own interest to pay more attention, since it would lead to more competition, and enable them to obtain better prices for their wools.

Mr. Fisher Hobbs could only say for the Committee that if they were successful in future years as at its first and second meetings, a long career of usefulness might be looked forward to by the Essex Agricultural Association. It had been for years past a question with many whether, in a purely agricultural county like Essex, they could establish a useful show of stock; but he thought their first meeting proved that, although they had not the same facilities as in some other parts of the kingdom, there was a spirit of determination on the part of the first class farmers of Essex to have good stock, knowing that it would pay better than bad, and that with that view they were also satisfied of the necessity of breeding their own animals. Mr. Rebow was much mistaken as to the extent of sheep grazing in this part of the county. Instead of the neighbourhood of Colchester within twenty miles being unable to furnish more than six flocks of sheep, he should say that there were at least sixty flocks of pure-bred animals. Might this branch of agriculture increase and flourish amongst them; and as Essex had taken up a good position with regard to the cultivation of the soil, so he hoped they should, through the encouragement and stimulus afforded by this Society, take up almost as good a position as breeders and rearers of stock.

Mr. J. Oxley Parker, as one of the stewards, returned thanks on their behalf. Many gentlemen who "sit at home at ease" had but a small notion of the trouble that a meeting of this kind occasioned to the stewards. He believed that he might say that his kind co-operators—the friends who had acted with him—were glad to do what they had done, and that they felt they had been fully rewarded for their labours in the success of the meeting. He was not sure that they felt unbounded satisfaction at the result: on the contrary, he believed his brother stewards would gladly have seen a larger entry of stock. True, the stock exhibited was of good quality, but he wanted to see an increase in quantity as well as quality. Last year, at Chelmsford, the entries numbered one-third more than they did this year; whereas he expected that there would have been an increase to the extent of one-half. He regretted that the great breeder of stock in the neighbourhood of Colchester had not exhibited anything. He thought they would have been largely patronized by Mr. Fisher Hobbs on this occasion; and he could not help regretting that a sort of squeamish attention to an observation made with respect to the number of prizes which he gained last year at Chelmsford caused him to retire from the field. Why, if Mr. Hobbs were to carry off the first prize in every class, he (Mr. Parker) should be glad to see him do so, provided the animals were worthy of the distinction.

Mr. Fisher Hobbs said, that as he was requested to take an active part in the arrangements of this meeting, he considered that he should best serve the society by refraining from exhibiting, and therefore he preferred giving up his private interest to the public welfare.

Mr. G. D. Badham returned thanks for the "Successful Exhibitors." It was always his pride and pleasure to produce good animals, and was naturally gratified to meet with success. Essex was his native county, and wherever the society held its meeting he should always be happy to exhibit any animals he might have.

THE GLOBE: ITS NUMBER OF ACRES OF LAND AND WATER, AND POPULATION.

Sir,—Sir Isaac Newton the Great has told us that the earth is about 25,020 miles in circumference, and the diameter about 7,960 miles; if so, there are upon the surface 127,461,888,000 acres of land and water; and supposing one-third to be dry land, there would be 42,487,296,000 acres, and of water 84,974,592,000 acres; and estimating the population of the globe at 925,000,000 souls, there would be for each 45½ acres of dry land, and 91 acres of water to produce fish for food and to manure the dry land, and not the sea, like the sewage of London, which is antediluvian statesmanship—and common sense will soon end it or mend it, to keep pace with steam, gas, and the telegraph, which are only three steps towards a vast mountain of discoveries that have lain in a torpid state for nearly 6,000 years. But what can we expect from men whose minds are confined in the small space of a nutshell? Nay, where is the *Golden Calf* worshipped more than in England? The famous old adage says,

> "He who pays more respect to wealth than sense,
> Would worship idols to increase his pence."

The great philosopher Diogenes, who lived and lay in a tub, said "It was no use pumping water into a sieve; you could not carry it away. A man might be rich and not wise, and wise and not rich.

Samuel Arnsby.

Blue Bell Inn, Peterborough, June 1st, 1859.

NORFOLK AGRICULTURAL SOCIETY.

MEETING AT SWAFFHAM.

On Wednesday, June 15, the Norfolk Society met at Swaftham, which shares the honour of accommodating the Association alternately with the ancient capital of the county. The weather was splendid—an unsullied sky, with just a cloud or two to keep the vast expanse of blue in countenance, putting all fears of rain out of the question; while the heat was tempered by a slight breeze, although verging at mid-day on sultriness. The consequence was that the special trains put on for the occasion were well freighted with passengers, comprising not merely the bronzed and ruddy farmer, but many of those who "in populous city pent" wished to pass a few hours in green fields, and draw on Nature's abundant treasury for the health-giving pleasure which she rarely fails to afford. Assuredly the appearance of the country was extremely beautiful, and the morning's journey was by no means an insignificant part of the pleasures of the day. Norfolk is not distinguished for very brilliant scenery; but her well cultivated fields, cosy homesteads, and leafy plantations glancing in the sunlight and bending in graceful obeisance to the breeze, are invested with interest to practical minds, although they do not figure much in guide-books.

The first impression supplied by the show-yard was that it was 1857 over again. Lord Leicester and Mr. Blomfield divided, as of old, the spoils for the Devons, and in the class of Devon cows the noble Lord had it all his own way, a circumstance which probably no one regrets more than himself. This lack of competition prevailed also with regard to Shorthorn in-calf heifers, of which Mr. S. Gooch was the only exhibitor. Mr. T. Paul was the solitary candidate for the prize offered for fat steers of any breed under three years old; while of yearling Shorthorn bulls, yearling Devon bulls, fat cows of any breed for milking purposes, and cows or heifers there were no entries. When it is added that the 65 animals exhibited were shown by 22 individuals, it will be seen how languid the spirit of competition has become in Norfolk, considering the extent of the county and the number of her able agriculturists. The reason probably is the admitted excellence of the stock entered by the well known noblemen and gentlemen who generally carry off the premiums, and against whom it is felt that it would be vain to compete—a supposition favoured by the fact that the 22 prizes were divided among ten candidates. Farmers generally display a good deal of sensitiveness as to the result of their competitive trials, and do not like to be set up merely to be bowled down like nine-pins. The consequence is that they are slow to move against established reputations; and there seems little doubt that until a system of temporary disqualification—say for one or two years—clears the course a little, the old hands will still make all the running.

The Shorthorns exhibited on the present occasion were much admired, and the Devons presented the attractive characteristics of that beautiful breed; but still, the interest of the exhibition would be increased and the glory of a triumph would be enhanced—even the successful competitors must admit it—if the entries were more numerous and the competition more general. It does not either require much argument to establish the fact that the Association would still further than at present "take root downwards and bear fruit upwards."

As with the cattle so with the sheep, only twenty competitors appearing in the thirteen classes. The Southdowns were contributed by four or five gentlemen, and the conclusion will be justly arrived at that they were first-rate, when the names of Lord Walsingham, the Earl of Leicester, Lord Sondes, and Mr. J. B. Aylmer, are mentioned. The Southdown rams of the first-mentioned nobleman attracted considerable notice, and there were also four excellent pens of Southdown ewes. The Leicesters were of great size, and their wool of almost fleecy whiteness glittered in the sun; while it is sufficient to recapitulate the names of Mr. Beale Browne, Mr. Hugh Aylmer, Mr. T. Brown, Mr. G. M Sexton, and Mr. J. Overman, as guarantees of the general excellence attained in this breed. In the class of wether lambs of any breed there was the most active competition noticeable in this department of the exhibition as regards the number of competitors; and it will be seen that the entries of Mr. W. Groom carried off the palm.

Of horses there was about an average exhibition. Some of the cart-stallions indicated great strength and power, the Suffolk element being as usual worthily represented. Mr. N. G. Barthropp asserted the reputation which the neighbouring county bears in this department, bearing off the prize in each case for cart-fillies. Of thorough-bred stallions, entries were made by Mr. F. Barlow, Lord Suffield, Mr. A. Applewhaite, Mr. W. C. King, and Mr. J. L. Barrat. There were some eight or ten entries of hackneys, with regard to which complaints have been made that this class of horses was becoming extinct in the county, although it was once celebrated for them.

The show of pigs was also about an average, but only one boar of large breed was entered, while there were just four distinct competitors in the four classes—Mr. T. Crisp, Lady Pigot, Mr. G. M. Sexton, and Mr. J. Sewell. Mr. T. Crisp carried away, as the judges' awards show, all the prizes.

The show of implements was smaller than usual. The entries made were confined almost, if not altogether, to the old-established houses, while only 111 entries came under the notice of the judges, a considerable proportion—one-third—not having been made within the time prescribed by the rules of the association. The observations made with regard to the limited entries of stock do not, however, apply with equal force to the implement yard, as the stock, one would think, ought to constitute the speciality of a county show.

The makers who put in an appearance on Wednesday were Messrs. Garrett and Sons, Mr. R. S. Baker, Mr. Jesse Kemp, Mr. J. Baker, Mr. C. Burrell, Mr. W. M. Cranston, Mr. H. Cornish, Messrs. J. Woods and Sons, Messrs. Smith and Ashby, Messrs. Creak and Colby, Mr. E. H. Bentall, Messrs. Holmes and Sons, Mr. Howard Reed, Messrs. Clayton and Shuttleworth, Mr. J. Sainty, Messrs. Coleman and Sons, Messrs. Murton and Turner, Mr. W. Cambridge, Mr. A. Sparke, Mr. J. Campling, Messrs. Smyth and Sons, Mr. F. Savage, Messrs. Barnard, Bishop, and Barnards, and Messrs. Picksley, Sims, and Co. Nearly all these firms, it will be observed, were connected with the immediate eastern district. Woods and Son, from Suffolk, had a capital selection of implements, to which the judges awarded the first and highest prizes. The article that attracted most attention was the new root pulper, improved and made from the original Phillips' patent. The implement appears now to be perfected, and is as cheap and simple as a Gardner's turnip cutter. There were few other novelties reported, but in this respect the portable iron fencing exhibited by Mr. J. Sainty, of Burnham, seemed to attract some notice. The merits of this fencing appeared to be lightness, and consequent easy portability, with readiness of adaptation to the varying size of fields. It would be useful of course in sheep folding. The price was stated at 15d. per yard for lengths exceeding 400 yards. Other improved or newly-invented implements, which elicited prizes, were a grass-mowing machine, a combined blowing and dressing machine, a jointed self-expanding chain harrow, and a two-horse reaping and mowing machine. Pulpers, slicers, lawn mowing machines (running on large balls acting as universal joints in all directions to ensure prompt turning round; a matter of importance in trimming edges and at the same time discriminating between grass and flowers), hummellers, drills, harrows, hoe, chaff-cutters, and the whole extensive family of agricultural machines were represented as usual. But the answer returned to our inquiry as to the readiness evinced to purchase was of a discouraging character.

There was a trial (although not for prizes) of mowing machines during the day in a field of white clover and rye-grass near the town. The clover was a good stout crop, and was laid low by the three machines brought to bear upon it—one, an American, worked as it was shipped. The clover appeared to be fairly cut, and not bruised and denuded of its succulent leaves, as some have complained has been the case in operations of this kind. It will be seen on reference to the dinner proceedings that the judges did not consider the action of the machines quite perfect, one treading on the grass after it was cut, and the other "locking" it, while (as Mr. Brown, the responding judge, added in his speech), it was not satisfactorily explained why a grass-mower could not be combined with a reaper. At the same time the judges marked their general approval of the machines by awarding silver medals.

PRIZES LIST.

CATTLE.

Judges.—William Ladds, Ellington, Kimbolton, Huntingdonshire.
J. Slipper, Tottenham.

Shorthorn Bulls.

First prize of 7*l*., and silver medal, to Lord Walsingham.
Second prize of 4*l*., to Stephen Gooch.

Yearling Shorthorn Bulls.

No entry.

Devon Bulls.

First prize of 7*l*., and silver medal, to J. Blomfield.
Second of 4*l*., to J. Blomfield.

Yearling Devon Bulls.

No entry.

Polled Bulls.

First prize of 7*l*., to Joseph Fulcher.
Second of 4*l*., to T. M. Hudson.

Yearling Polled Bulls.

Prize of 3*l*., to Lord Sondes.

Shorthorn Cows, in-calf or in-milk.

First prize of 5*l*., and silver medal, to Lord Walsingham.
Second of 3*l*., to Lord Walsingham.

Devon Cows, in-calf or in-milk.

First prize of 5*l*., and silver medal, to the Earl of Leicester.
Second not awarded, there being only three animals exhibited.
Lord Leicester's two other cows *commended.*

Polled Cows, in-calf or in-milk.

First prize of 5*l*., and silver medal, to J. Hamond.
Second of 3*l*., to Lord Sondes.

Cows of any breed (not Shorthorn, Devon, or Polled), for milking purposes.

No entry.

Shorthorn in-calf Heifers, bred by the exhibitor, and not above three years old.

First prize of 5*l*., and silver medal, to Stephen Gooch.
Second of 3*l*., not awarded, only two animals being exhibited.

Yearling Shorthorn Heifers.

Prize of 2*l*., to Lady Pigot.

Yearling in-calf Heifers.

First prize of 5*l*., and silver medal, to J. Blomfield.
Second of 3*l*., to the Earl of Leicester.

Yearling Devon Heifers.

Prize of 2*l*., J. Blomfield.
J. Blomfield's other heifer *commended.*

Polled In-calf Heifers.

First prize of 5*l*., and silver medal, Lord Sondes.
Second of 3*l*., Lord Sondes.

Yearling Polled Heifers.

Prize of 2*l*., Lord Sondes.
Another of Lord Sondes' heifers *highly commended.*

Fat Steers, of any breed, above three years old.

First prize of 5*l*., and silver medal, T. M. Hudson.
The Rev. J. Holmes's *commended.*
No second prize awarded, only two animals being exhibited.

Fat Steers, of any breed, under three years old.

First prize of 5*l*., and silver medal, T. Paul.
Second not awarded, only one animal being exhibited.

Fat Cows or Heifers.

No entry.

SHEEP.

SOUTHDOWNS.

Judges.—G. Brown, Avebury, Marlborough, Wiltshire.
W. Rigden, Hove, Brighton, Sussex.

Southdown Shearling Rams.

First prize of 7*l*., and silver medal, Lord Walsingham.
Second of 5*l*., J. B. Aylmer.
Third of 3*l*., J. Overman.
Another of Lord Walsingham's rams *commended.*

Southdown Rams, of any age.

First prize of 6*l*., and silver medal, Lord Walsingham.
Second of 4*l*., Lord Walsingham.
Third of 2*l*., Lord Walsingham.
J. B. Aylmer's ram *highly commended.*

Southdown Shearling Ewes.

First prize of 5*l.*, and silver medal, Lord Walsingham

Second of 3*l.*, Lord Walsingham.

J. Overman's and J. B. Aylmer's rams *commended.*

Southdown Ewe Lambs.

First prize of 4*l.*, and silver medal, the Earl of Leicester.

Second of 3*l.*, Sir W. Jones.

Southdown Shearling Wethers.

First prize of 5*l.*, and silver medal, Lord Walsingham.

Second of 3*l.*, Lord Walsingham.

Lord Walsingham *commended* for a third entry.

Southdown Wether Lambs, bred by the Exhibiter from a flock of not less than five score ewes.

First prize of 5*l.*, and silver medal, Lord Sondes.

Second not awarded, only two animals being exhibited; but the Earl of Leicester's lambs *commended.*

Southdown Shearling Ewes, not separated from their flock of ewe hoggetts earlier than the 1st of June, or clipped before that day.

First prize of 5*l.*, and silver medal, the Earl of Leicester.

Second of 4*l.*, Lord Sondes.

Third of 3*l.*, not awarded, an insufficient number of animals being exhibited; but Lord Sondes and the Earl of Leicester's ewes *highly commended.*

LONG WOOLS AND HALF-BREDS.

Judges.—F. Spencer, Claybrook.
W. Torr, Aylesby.

Shearling Leicester or Long Woolled Rams.

First prize of 7*l.*, and silver medal, Hugh Aylmer.

Second of 5*l.*, Hugh Aylmer.

Third of 3*l.*, Hugh Aylmer.

T. Brown and Hugh Aylmer *highly commended*, each for two rams; and the Class generally *commended.*

Leicester or Long Woolled Rams, of any age.

First prize of 6*l.* and silver medal, T. Brown.

Second of 4*l.*, T. Brown.

Third of 2*l.*, Hugh Aylmer.

Another of T. Brown's rams, *highly commended;* and Hugh Aylmer's and T. Brown's (fourth), *commended.*

Sheareing Leicester or Long-Woolled Ewes.

First prize of 5*l.* and silver medal, Hugh Aylmer.

Second of 3*l.*, Hugh Aylmer.

Wether Lambs, of any breed.

First prize of 5*l.* and silver medal, W. Groom.

Second of 3*l.*, W. Groom.

L. Barrat *commended.*

Shearling Wethers, of any breed (except Southdown).

First prize of 5*l.* and silver medal, J. Overman.

Second of 3*l.*, J. Overman.

J. Overman *commended* for a third entry.

Ewes, of any age or breed from a flock of not less than 5 score, having brought up a lamb or lambs to within three weeks of the day of exhibition.

Prize of 5*l.* and silver medal, the Earl of Leicester.

Lord Sondes *commended.*

HORSES.

Judges.—George Gayford, Lackford, Suffolk.
Thomas Perceval, Wansford, Stamford, Lincolnshire.

Cart Stallions, not under four years old, having covered at least 30 mares during the present season.

First prize of 10*l.*, T. Crisp.

Second of 7*l.*, H. Overman.

Third of 5*l.*, T. W. Read.

Three-years-old Cart Stallions, having covered at least 15 mares during the present season.

First prize of 8*l.*, T. Crisp.

Second of 4*l.*, B. Pond.

Two-years-old Cart Stallions.

First prize of 6*l.* and silver medal, T. Crisp.

Second of 3*l.*, T. Wright.

Cart Stallions.

The Swaffham cup for the best cart Stallion in the yard, having covered at least 30 mares in Norfolk during the present season, to T. Crisp.

Thoroughbred Stallions, used for breeding purposes during the present season.

Prize of £7, to Lord Suffield.

Stallions for saddle or harness.

First prize of £7, to Lord Suffield.

Second of £4, to J. Warman.

F. Gardner *commended.*

Hackney Mares or Geldings, above five years old, above 14 hands, and not exceeding 15½ hands, high.

First prize of £10, and silver medal, to T. Brown.

Second of £5, to M. Cooper.

Mares and Geldings, for saddle or harness, under five years old.

First prize of £5, and silver medal, to F. Gardner.

Second of £2, to Joseph Fulcher.

Three-years-old Mares or Geldings, for hunting purposes.

Prize of £5, and silver medal, to Capt. Marcon.

Brood Mares, for saddle or harness, certified to have produced a living foal within twelve months immediately preceding the day of exhibition.

Prize of £5, to W. R. Freeman.

Cart Mares.

First prize of £7, to Rev. J. Holmes.

Second of £5, to G. Wood.

Third not awarded, only four animals being exhibited.

T. Crisp *commended.*

Three-years-old Cart Fillies.

First prize of £6, and silver medal, to N. G. Barthropp.

Second of £3, to H. Overman.

J. Overman *commended.*

Two-years-old Cart Fillies.

First prize of £5, and silver medal, to N. G. Barthropp.

Second of £2, to R. Smith.

Cart Foals.

First prize of £4, and silver medal, to T. Crisp.

Second of £2, to H. Overman.

Ponies, not under 12 nor above 14 hands high.

Prize of £5, to F. E. Beck.

T. Crisp and W. R. Freeman *commended* for ponies.

SWINE.

Judges.—F. Spencer, Clayboook Magna, Lutterworth, Leicestershire.
W. Torr, Aylesby Manor, Grimsby, Lincolnshire.

Boars of large breed.

First prize of £4, to T. Crisp.

Second not awarded, only one animal being exhibited.

Breeding Sows of large breed.

First prize of £4, to T. Crisp.

Second not awarded, only two animals being exhibited.

Boars of small breed.

First prize of £4, and silver medal, to T. Crisp.

Second of £2, to G. M. Sexton.

T. Crisp *commended.*

Beeeding Sows of small breed.

First prize of £4, and silver medal, to G. M. Sexton.

Second of £2, to T. Crisp.

G. M. Sexton also *commended.*

Store Pigs (best pen of eight, of the same litter, and not exceeding four months old).

No entries.

IMPLEMENTS.

Judges.—T. Brown, Marham, Norfolk.
J. Fergusson, Wretham, Norfolk.

Collections of Agricultural Implements.

First prize of £6, to J. Woods and Sons, Stowmarket, Suffolk.

Second of £4, to Garrett and Sons, Leiston, Suffolk.

Third of £2, to Howard Reed, Lynn, Norfolk.

Chaff-sifters (which, in the opinion of the judges, will most speedily and effectually free corn-chaff from straw and dust).

Prize of £5, to Holmes and Sons, Norwich.

Silver medals were awarded to the following exhibitors of newly-invented or improved implements which the judges desired to mark with their approval:—

Jesse Kemp, of Thurlby, Lincolnshire, for a grass-mowing machine.

John Baker, of Wisbech, for a combined blowing and dressing machine.

Wm. C. Cambridge, of Bristol, for a jointed self-expanding chain harrow.

Howard Reed, of Lynn, Norfolk, for a two-horse reaping and mowing machine.

The judges *highly commended* the scarifiers exhibited by Coleman and Son, of Chelmsford, and the portable iron fencing exhibited by John Sainty, of Burnham; and also *commended* the general collection of implements exhibited by E. H. Bentall, of Heybridge, Essex.

THE DINNER.

A party of about 120 dined together in the afternoon, at the Assembly Rooms. The chair was occupied by the Marquis of Lothian, president for the year, and his lordship was well backed up by the county élite—the Earl of Leicester (Lord Lieutenant), Lord Stafford, Lord Sondes, the Earl of Albemarle, Lord Suffield, Lord Hastings; Mr. G. W. P. Bentinck, M.P., Mr. Brampton Gurdon, M.P., and Lieut.-Colonel Coke, M.P. The general company included the Hon. and Rev. Mr. Harbord, Mr. W. Burroughs, Mr. A. Hamond, jun., H. W. Keary, Mr. J. Hudson, Mr. A. B. Trethewy, Mr. J. Everitt, Mr. S. Abbott, and most of the leading farmers of the district.

The Earl of Leicester, in responding for the Lord Lieutenant, said it was some years since he attended the annual meeting of the society. He could not say that he saw any marked difference in the character and quality of the stock shown, but the exhibition was most creditable to the county. The noble lord then referred to the rifle corps topic, arguing that it was neither necessary nor desirable that agricultural labourers should be taken away from their ordinary avocations, as the defence of the country must rest with that great middle class which had hitherto been the prop and support of England.

Lord Sondes proposed "Success to the Royal Agricultural Society of England." In doing so he referred to this Swaffham Show, which, as far as his own opinion went, he thought it was very creditable to the county. When he first came to live in Norfolk, he had some Norfolk sheep in his flock, and also some Norfolk home-bred cows, and he remembered very well the late Earl of Leicester (Mr. Coke) doing him the honour to visit him at Elmham, and saying, "Change as little as you possibly can; get rid of the Norfolk sheep, but stick to your home-bred cows." He (Lord Sondes) was happy, notwithstanding the knock-down blow they got last year, to see so many exhibited that day; they were not so fashionable as the Devons and many other cattle, but he believed they were as profitable and useful cows as could possibly be kept, and his great pleasure was to keep up the breed.

Mr. Hudson, in responding to the toast, said he trusted the Royal Society had been doing some good during the period to which the noble lord had referred. He looked upon the Holkham sheep-shearings as the ground-work of the Royal Society. Mr. Coke took in hand to carry out what the 4,000 members of the Society were now endeavouring to accomplish. Holkham thirty or forty years ago gave prizes to a large extent for the best cultivation and the best breed of sheep that could be produced. The noble lord had stated that Mr. Coke wished him to get rid of the Norfolk sheep, and he (Mr. Hudson) did not wonder at it. We had now a breed of sheep which could be brought to market in a year and a-half, whereas it took three years and sometimes four to bring those sheep to maturity. A very large meeting was now about to be held at Warwick, and he hoped his friends would not only be amused but instructed by what they might see there. He had no doubt they would see some of the finest animals which England could produce, and also many from Scotland. The entries were very large, and the show of implements would also exhibit an increase. At the first meetings of the Society the show of implements was not greater than that which they had witnessed during the day. The Society had, however, offered large prizes for the best implements which could be brought to bear upon the tillage and cultivation of the soil, and he hoped they had been brought out to the satisfaction and benefit of the tenant farmers of England.

Lord Suffield proposed the "Yeomanry of Norfolk."

Mr. J. Everitt replied, and alluded in feeling terms to the loss which the society had sustained in the late Mr. Richard England and Mr. Henry Overman.

Mr. Slipper, of Tottenham, in answer for the "Judges of Stock," said, the first lot of cattle to which their attention was called were the shorthorn bulls, and in that class they found some very meritorious animals. The bull to which they gave the first prize was, if not quite a first-class animal, very nearly approaching to it. He did not think the shorthorned cows were so good this year as when he had the pleasure of being a judge two years ago; but, as they had the bulls in the county, it would be easy to buy a few cows, and he was sure they could go on and improve that class of their stock. They then came to the Devons; and it was somewhat strange that this class of animals should have been removed from their native climate and soil and transplanted into Norfolk, where they had been bred and fed so as even to beat the animals bred and fed in their native county. They had to thank the late Lord Leicester for having introduced this breed of cattle into the county, and certainly a more beautiful class of animals could not be shown. It was true that they were not very large, but at the Baker-street show size was not so much taken into consideration, and although perhaps animals were shown double their weight, these very pretty and beautiful cattle took the prize from them. They next came to a certainly very pretty and useful class of stock, called the Norfolk polled cattle. These cattle he could perceive, although divested of the horns, had had other blood thrown into them most judiciously. It might be remarked, perhaps, after the judges had gone over and awarded the prizes, that there were polled cattle with a peculiar dark hair about them. That, he believed, was not the natural hair of the Norfolk polled cattle; and in his opinion there had been some Scotch blood thrown into them. Now if some Scotch blood had been thrown into the breed, and if with that blood they had produced horns, of what consequence would that be if the breed had been improved by the crossing? He thought all breeds should be kept as pure as possible, but he did not consider that all farmers could breed pure-blooded animals at a profit. One breed should be crossed with another, and by this means a more profitable animal could be produced, to feed either on grass, turnips, or cake, than by merely sticking to pure blood. If they went into Scotland—and it was a well known fact that Scotchmen generally ranked among clever men—it would be found that the farmers there fed animals of all classes. It was a matter of no importance to a Scotchman whether his bullock was a red one or a black one, a white one or a green one, if he could get it—whether it had horns, or whether it had not. To show a fallacy attaching to horned cattle. They had thousands of black cattle brought from Ireland with horns: they might be Welsh, they might be horned Scots, or they might be a nondescript breed; but at all events they were divested of the horn when young, and hundreds of them were brought into Norfolk, and sold for Scots. Therefore it was no matter whether their cattle were horned cattle or polled cattle; but so long as they could get a description of animals which they could feed at a profit, that was the breed to stick to. He believed they had all the raw material in Norfolk, and plenty of talent to turn it to good account. They should scarcely depend upon people who lived in distant counties for the supply of store cattle, and he thought they should guard against that cattle being short, and bring up a portion of their own cattle upon their own farms. He should have much pleasure at the next meeting, if the society would accept it, in giving a prize of £5 for three of the best calves, not more than six months old: they might be horned ones, or polled ones, or any other breed, so long as they were the right sort.

For "The Judges of Southdown Sheep," Mr. Rigden said it was now seven years since he had the honour of attending the Society's meetings as a judge of stock, and since that time he had seen a marked improvement in the Southdown sheep; but he should be saying too much if he were not to add that there was plenty of room left for further improvement still. The class of shearling rams he did not consider so good as he expected to have seen them: the older sheep were certainly better, and the shearling ewes were also a good class. The greatest credit was due to the breeders of four score of shearling ewes shown in scores.

Mr. T. Brown, for "The Judges of Implements," said his colleague and himself were exceedingly sorry that they had not been able to inspect all the implements. There were 170 entered, but from some inadvertence only 111 came under inspection, or scarcely two-thirds. As judges they had to award the prizes to the best collections they saw, and some latitude must therefore be allowed for their decisions. They were sorry that only one chaff-sifter was exhibited; they did not consider that implement perfect, but they felt bound to award it the prize because they thought it was a step in the right direction, and might induce other makers to turn their attention to the subject, so that by-and-bye they might get a perfect one. To the grass-mowing machines the judges had given medals, but they did not consider them quite perfect. They cut the grass uncommonly well, but one of them trod the grass after it was cut, and the other locked it. The judges also could get no answer to their questions why the grass-mower could not be combined with the reaping-machine, and so be of less expense.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held on Wednesday, May 25. Present, Sir J. V. B. Johnstone, Bart., M.P., Vice-President, in the chair; Count de Wezele, the Hon. Leslie Melville, Mr. Badham, Mr. Beale Brown, the Rev. Archer Clive, Mr. Corbet, Mr. Fawcett, Mr. Brandreth Gibbs, Mr. O. Hall, Mr. Fisher Hobbs, Mr. Majendie, Mr. Moore, Mr. Nesbit, Mr. Severn, Mr. Simpson, Mr. Slaney, M.P., Mr. Spooner, and Mr. Burch Western.

The names of candidates for election were read.

Mr. Fisher Hobbs, in accordance with the arrangement made at the last Council, favoured the meeting with the following statement of his practical experience in preventing the ravages of the Turnip-fly:—

"Having been requested at the last meeting of the Society to introduce to the notice of the members my experience of, and mode of treatment for, preventing the ravages of the Turnip-fly, I readily consented to do so; with, however, the understanding that what I had to say should be given more in a conversational form than as a paper especially prepared for the occasion. I was induced the more to respond to this invitation in the hope that it might act as something of an example for other members, and that the Weekly Council Meetings of the Society might become of some interest and service to us all, by affording the time and place for talking over subjects of passing importance to agriculturists generally. In introducing this subject I wish you particularly to understand that I have no new theory to expound, but merely to impress the result of my practice and the policy of carrying out certain principles which have long been known and admitted, but, I fear, not sufficiently observed. My remarks on the cultivation I should here state are intended to apply more to the Swede Turnip than to any other varieties which are generally grown after green crops, but the great work of destruction by the fly is applicable alike to both. As 'prevention is better than cure,' I shall commence with the preparation of the land, assuming that this has been thoroughly under-drained wherever requisite. 1st. I consider that autumnal cultivation is essentially necessary; first, by broadsharing for the destruction of weeds and insects, as well as for the aëration of the soil. 2nd. That deep ploughing should follow, and subsoiling if required, and it is frequently my practice during the early part of winter to carry on to the land intended for a root crop the unfermented manure direct from the yards or sheds, and at once plough it in, and not a particle must be suffered to be seen on the surface; this I believe to be important; for if not attended to, the undecayed portion of the manure becomes a receptacle, and subsequently a nursery for insects. 3rd. That at the commencement of spring it is most desirable, as soon as the state of the land will permit, to apply the harrows and roll, especially the former. I believe that more good may be done towards the destruction of insects of various kinds at that period than at any other throughout the year. Afterwards scarify, harrow, and roll until the land is in a pulverized state, and for a fortnight or three weeks before the time for drilling let the land remain like a seed-bed, so as to attract moisture, to allow vegetation for the seeds of weeds and for insects to deposit their larvæ; this is frequently termed 'purging' the land. I need not refer to the common mode of applying the fermented or partly rotted farm-yard manure for the Turnip crop, except to state that it ought at once to be ploughed in, and the seed deposited immediately. 4th. That at the time of drilling the seed it is best for the land to be ploughed (but some prefer scarifying only), and the seed to be immediately deposited. This is so important that I have frequently known total failures from the neglect of so doing. There is another point which I would strongly recommend, that is, in dry and sunny weather to plough and sow early in the morning, and late in the afternoon, but never during the heat of the day. I know an instance where the most signal success has for several years attended this mode of operation, and where the manager has never failed to secure a plant, although he is one of the old school, and still sows the seed broadcast with his own hand. This can be confirmed by several large farmers in the neighbourhood, who, strange to say, notwithstanding the example thus placed before them, continue to incur an amount of loss from having to sow two or three times, simply from the obstinacy and prejudice with which they continue to adhere to the customary working hours for their horses and men. 5th. That at the time of depositing the seed it is my invariable practice to use some description of artificial manure, generally superphosphate of lime, and I likewise add about thirty bushels of ashes per acre, made from hedge trimmings, weeds, &c., collected upon the land at different periods throughout the year. The roller may now be used with great advantage, before, and sometimes after the drilling. In dry weather I strongly recommend the application of the liquid manure drill. 6th. That before or immediately the young plants appear, the horse-hoe should be resorted to for the purpose of destroying the ova or larvæ of the insects to prevent their coming to maturity. When once the plant is well up the roller may sometimes be applied with much benefit, as it tends still further to disturb the insect tribe, as well as to retain moisture for the young plant, and to consolidate the farm-yard manure where lately applied. At this period the plant requires frequent watching throughout the day, and if the enemy shows itself in any force, set to work as quickly as possible to accomplish its annihilation. Having described to you briefly my mode of prevention, I will now proceed to give you the cure, which is simply by the application of one or more 'top-dressings.' I have tried various experiments, steeping the seed, and top-dressings for upwards of thirty years; but though sometimes successful I could not depend on any of them until I adopted my present system, and I think it only fair that I should state that I derived the chief features as to the use of this top-dressing from my late bailiff Mr. O. Hawkins, who came to me some nine years since with an especial recommendation on this point; in fact, he himself engaged to secure the Turnip plant from the ravages of the fly, adding that he was willing to give up his situation immediately if he could not do so. I can only add that for eight years, during the whole time he was with me, he fulfilled all he promised in this respect. The following is Mr. Hawkins's recipe for a top-dressing:—1 bushel of white gas-ashes fresh from the gas-house; 1 bushel of fresh lime from the kiln, 6 lbs. of sulphur, and 10lbs. of soot, well mixed together, and got to as fine a powder as possible, so that it may adhere to the young plant. The above is sufficient for 2 acres when drilled at 27 inches. It should be applied very early in the morning, when the *dew is on the leaf*—a broadcast machine being the most expeditious mode of distributing it, or it may be sprinkled with the hand carefully over the rows. If the fly continues troublesome, the process should be repeated: by this means 200 to 220 acres of Turnips, Swedes, and Rape have been grown on my farms annually for eight or nine years without a rod of ground losing plants. The above is a strong dressing, to be used when the fly is very numerous, and has never failed when applied at night. Numerous experiments have been tried, and amongst them I recommend the following in ordinary cases, and intend to use it during the present season if necessary:—14lbs. of sulphur, 1 bushel of fresh lime, and 2 bushels of road scrapings per acre, mixed together for a few days before it is used, and applied at night, either by means of a small drill, or strewed along the rows by hand. I have known sulphur mixed with water applied in a liquid state by means of water-carts during the night, and the horse-hoe immediately following the water cart. This has succeeded admirably. In consequence of the dryness of the climate in my neighbourhood (the rain-fall being on the average only about 16 inches annually) I usually sow on the flat; but the dressings above-named are equally applicable to crops sown on the ridge. I would strongly impress the necessity of frequently applying the horse-hoe. It is not my intention to enter upon the subject of the history, habits, and transformations of the various insects that infest the Turnip crop, but I would rather refer you to Curtis's excellent treatises on the subject, which appear in our journals. I think that these papers might be reprinted with great advantage in a cheap form, in something of the same style of pamphlet as Mr. Miles's Essay on Horse-hoeing. I am quite sure there is no subject of which the farmer has so little scientific knowledge as entomology, nor is there one that has had less attention paid to it by the Society. In offering these rough notes to your notice I am fully aware of the little information I have given, and I wish you to understand that I feel I have only acted up to the principle which I have always endeavoured to observe in the course of my agricultural career. I have ever been anxious to impart information as well as to acquire it. I have no secrets to keep, and in my opinion there ought to be none in farming. The system I here recommend is founded upon my own practice and experience, and for many years I have proved and can answer for its efficacy. I am induced from these results to conclude that by care and attention the Turnip plant may be as effectually and as certainly freed from the ravages of the fly as seed Wheat has been for upwards of the last 20 years from smut and other destructive fungi."

Mr. Nesbit, in reply to a question from the Chairman, stated that the paper read by Mr. Fisher Hobbs was calculated to be of great benefit to the farmer. Mr. Hobbs's experience extended over a period of nine years; and whilst using the substances mentioned, in the manner indicated, he had not lost one rod of turnips. It was evident that the most important ingredient in these mixtures was sulphur. In the "gas ashes," or rather "gas lime," sulphur was found in considerable quantity. Gas lime was produced by using lime, in proper receivers, for the purpose of absorbing sulphur from gas. When applied in quantity to land, in its original state, it destroyed all vegetation. When mixed with earth, and turned over for a twelvemonth, it became more mild, and might be used with safety. The quantity mentioned by Mr. Fisher Hobbs could not possibly do any harm; and as its application had been successful for some years, he would not himself recommend any considerable alteration in the quantity to be applied per acre. The use of soot, he thought, was decidedly right. In the case of using sulphur with lime, their union, if properly effected, by slaking the lime and making the mixture moist, would give a compound of lime and sulphur somewhat analogous to gas lime, and possessed of similar properties. This mixture might, of course, be made in any locality where gas lime could not be obtained; but near most towns the gas lime might be had for the trouble of fetching it. Dry road-dust added to the compound would render it capable of being sown; and the presence of the former on the leaves would present a mechanical difficulty to the ravages of the fly. Sulphur unassociated with an alkali or an alkaline earth, such as lime, though it might be to some extent advantageous, would require to be used to such an amount as to entail an unnecessary expense. The experience of Mr. Hobbs was very interesting in a scientific point of view, as it gave an increased importance to some previously well-known facts—as, the oïdium, or grape disease, had yielded to the action of alkaline sulphurets; and on the hop-plant, sulphur had been found beneficial both in the case of the mould and the fly. The working of the soil at night or morning, when the dew was on the ground, he thought was worthy of the serious attention of the farmer.

The Hon. Leslie Melville said that, on his dry and shallow soil, he had found by experience that late ploughing should be avoided. His attention had first been drawn to this fact in the Essay in the Society's *Journal;* and he had found it borne out in practice that no ploughing should be done later than March, and all subsequent preparation should be by scarifying, &c. He had also found (by experiment) that both turnips and potatoes answered best on such soils as his own, when the drills run north and south, as the plants partially shade each other during the intense heat of the day. He also named that he had found a composition manufactured by "Price's Candle Company" most effective against the green fly and red spider in his greenhouses.

Mr. Spooner, of Southampton, had made experiments last year by measuring out three plots of of his turnip crop, to which he applied the following dressing: First, sulphur; second, lime; third soot. From the sulphur he found no effects; from the lime a little benefit; and from the soot the most. With reference to the gas lime he believed that the smell might be greatly instrumental in keeping the fly away, as that insect possesses the sense of smell in a high degree.

Mr. Nesbit, in answer to a question put to him, stated that he was of opinion that the action of sulphur by itself would be but little, and unless in considerable quantities almost inert. He believed almost the secret of the success to be that the lime rendered the sulphur soluble.

Mr. Badham stated that he had found rolling young turnips to be very beneficial.

Mr. Slaney, M.P., inquired of Mr. Hobbs whether he considered that sand would answer as well as road-scrapings—because the latter in many districts could not be obtained.

Mr. Hobbs replied, that in his opinion any sharp grit would answer the purpose, because he had observed that after heavy rain had caused any grit to adhere to the young plants, they had generally escaped the ravages of the fly. He would impress upon all who wished to try experiments the necessity of applying the dressing by night when the leaves of the young plant are *wet with dew* and when the insects are on the surface feeding.

The thanks of the meeting were voted to Mr. Fisher Hobbs for his interesting communication. A letter from Mr. Smith as to Steam Cultivation was referred to the Implement Committee. A letter from Miss Banister was read, and a specimen of the growth of Dactylis glomerata (Cock's-foot Grass) was laid on the table.

A Special Council was held, by order of the President, on Friday, May 27th, 1859: present, Lord Walsingham, in the chair; Lord Feversham, Lord Tredegar, the Hon. Col. Hood, Sir W. W. Wynn, Bart., M.P., Sir J. V. B. Johnstone, Bart., M.P., Mr. Amos, Mr. Raymond Barker, Mr. Brandreth, Col. Challoner, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. Jonas, Mr. Kinder, Mr. Milward, Col. Towneley, Mr. Jonas Webb, and Mr. Western.

The Report of the Finance Committee was read.

A communication having been made by the Council to Mr. Hudson, the Secretary, and his reply having been received, it was unanimously resolved—

On the motion of Mr. Milward, seconded by Lord Feversham, "That Mr. Hudson be suspended from the office of Secretary from this time."

On the motion of the Hon. Colonel Hood, seconded by Mr. Jonas, "That Mr. Brandreth Gibbs be requested to accept the office of Honorary Acting Secretary *pro tem.*"

On the motion of the Hon. Colonel Hood, seconded by Lord Feversham, "That all letters be addressed to Mr. Brandreth Gibbs, as Honorary Secretary to the Society."

On the motion of the Hon. Colonel Hood, seconded by Mr. Jonas, "That these resolutions be made known to the public journals in the usual manner."

The Council came to other resolutions relative to the details rendered necessary for carrying into effect the above decisions, and gave orders accordingly.

MONTHLY COUNCIL: Wednesday, June 1, present, LORD PORTMAN, Trustee, in the Chair; Earl Powis, Lord Walsingham, Lord Camoys, Lord Bridport, Lord Feversham, Lord Leigh, Lord Tredegar, Sir J. V. B. Johnstone, Bart., M.P., Mr. Raymond Barker, Mr. Bramston, M.P., Colonel Challoner, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Chandos, Mr. Hoskyns, Mr. Lawrence, Mr. Milward, Professor Simonds, Mr. Slaney, M.P., Mr. Thompson, Professor Voelcker, Mr. Jonas Webb, and Mr. Burch Western.

The following new Members were elected:

Alexander, George M., The Woodlands, Stroud.
Barnes, George, Knowle Farm, Wimborne.
Beresford, Charles, Elton, Sandbach.
Booth, John, The Wall, Audley, Newcastle-under-Lyne.
Coleman, John, Longlands Farm, Holkham, Norfolk.
Coleman, Walter, Kingsbury Hall, Tamworth.
Coxon, John, Freeford Farm, Lichfield.
Dowding, John, Lay Court, Westbury-on-Severn.
Ellis, Job, Oswestry.
Fletcher, Alexander, Red House, Southampton.
Ford, George Ingram, Abbeyfield, Sandbach.
Hewer, John E., jun., Vern House, Hereford.
Horne, George, Brewery, Egham.
Hurrell, William, Newton, Cambridgeshire.
Jackson, Peter Rothwell, Blackbrook, Gresmont, Hereford.
Jones, Richard, Town Hous, Bartomby, Crewe.
Kensington, Edward, Dartmouth.
Kingsby, Thomas, Boarscroft, Tring.
Latham, George William, Bradwell Hall, Sandbach.
Lewes, S., Audley, Newcastle-under-Lyne.
Lewis, G., Audley, Newcastle-under-Lyne.
Maddox, John, Harley, Much Wenlock.
Malcolm, John, 7, Great Stanhope-street, May Fair.
Marris, Thomas, The Chase House, Ulceby, Lincolnshire.
Massey, Samuel, Lawton Arms, Lawton, Cheshire.
Morgan, John, Market Square, Shrewsbury.
Newsome, William, 30, Milverton Crescent, Leamington.
Nichols, Lambert, Tenbury.
Nichols, —, Durant's Arbour, Enfield.
Robinson, Thomas, Withem, Alford.
Scott, Henry, 17, Adam-street, Strand.
Semple, Edward.
Thornhill, Obadiah, Bartomby, Crewe.
Vevers, Charles, Ivington Park, Leominster.
Wallis, George, Henton Waldridge, Farlingdon.
Warwick, Earl of, Warwick Castle.
Wilbraham, Randle, jun., Rode Heath, Lawton, Cheshire.
Wilson, William, Bulcote, Nottingham.
Wood, George, Graham's Town, Cape of Good Hope.
Woolley, John, Sandbach.
Wooster, James, The Wrestlers, near Elstree, Herts.
Wright, S. W., Grendon House, Castle Ashby.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts, from which it appeared that the current cash balance in the hands of the bankers was £1,759 4s. 11d. On the motion of Mr. Thompson, seconded by Col. Challoner, a special committee was appointed to examine the past accounts, and to make certain reports thereon to a special meeting of the Council to be summoned.

AGRICULTURAL CHEMISTRY.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported that Professor Voelcker had analyzed a specimen of Mangel that had been stored two years, and that the Professor will be prepared at an early meeting of the Council to make some remarks upon the analysis he has made, with the object of turning attention to the general question of the causes (manurial and otherwise) exercising influence upon the important subject of the storing qualities of root crops generally.

WARWICK MEETING.—Lord Leigh, Vice-Chairman of the General Warwick Committee, reported the recommendations of the Committee in reference to—1st, the Hon. Director of the Show being empowered to order shedding, hurdles, &c., according to the number of entries (which close this day, June 1st), also as to arrangements with the Local Committee at Warwick, for hay, straw, and the yardmen and assistants required; 2nd, as to the lodgings to be provided for the Judges of the Show; 3rd, as to the printing of the Award of Prizes; 4th, the arrangement of the Programme of the Meeting; 5th, the application to be made to her Majesty's principal Secretary of State for the Home Department for the usual number of Metropolitan police; and other matters of detail connected with the Meeting.

SPECIAL COUNCIL FOR APPOINTMENT OF JUDGES.—The President was requested to summon a Special Council for 10 o'clock on June 22, for receiving the report of the Special Committee on Accounts, and of the Judges Committee, and appointing the judges for the several departments of live stock, implements, and also for cheese and wool at the Warwick Meeting.

STEWARD-ELECT OF IMPLEMENTS.—On the motion of Colonel Challoner, the Right Hon. Lord Leigh was unanimously appointed Steward-Elect of Implements.

The Council gave authority to the House Committee as to carrying out the details of matters intrusted to them.

At a weekly Council held on Wednesday, June 8th—present the Right Hon. Lord Berners, Trustee, in the chair; Lord Portman, Sir J. V. Shelley, Bart., M.P., Sir E. Kerrison, Bart., M.P., the Hon. W. G. Cavendish, M.P., Mr. Hodgson Barrow, M.P.. Mr, Caldwell, Col. Challoner, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Humberston, M.P., Mr. Manning, Professor Simonds, Mr. Slaney, M.P., Mr. Thompson, of Kirby Hall, and Mr. Burch Western—

The names of candidates for election were read.

A letter from Mr. R. Wainwright was read relative to a compound that he stated he had discovered to be unusually fertilising. The Council expressed their willingness to receive any further particulars he might wish to communicate.

Mr. H. Smythies, of Auckland, New Zealand, addressed an inquiry to the Council as to whether they were in possession of any remedy (poisonous or otherwise) against a small caterpillar, which he stated passes over the face of the country in swarms during hot dry summers, and devours all vegetation.

A communication from Mr. Greenwood, of Abermant, Brecon, was read relative to an insect that had destroyed his mangel-wurzel crop. This insect is not seen during the day-time, and the specimens which were placed on the table had been collected very early in the morning. Lord Berners stated that his bailiff had found the mangel plant on his lordship's estate eaten all over when about an inch high by a similar insect.

Professor Simonds stated that his mangel plants had been attacked by an underground grub. The Council directed the insects to be forwarded to Mr. Curtis, the entomologist, for examination, and also desired it to be stated in the reports of the proceedings of the meeting that the Society would be obliged by any further information on this subject from the members or others whose mangel crops had suffered in a similar manner to those above-named; and in case any successful remedy had been discovered, by an account of its nature and mode of application.

Mr. Whitehead transmitted copies of the prospectus of the "Cottage Improvement Society," 18, Adam-street, Strand

Baron de Cetto, of the Bavarian Legation, transmitted copies of the Transactions and Almanac of the Agricultural Society of Bavaria.

The thanks of the Council were ordered for the above communications, as also for the Journal of the Statistical Society, the Transactions of the Entomological Society, and the American Geographical and Statistical Society, which were placed on the table.

The Council then adjourned to the weekly meeting on Wednesday next.

At a weekly Council held June 15: Present, Mr. Raymond Barker, Vice-President, in the Chair; Lord Camoys, Lord Feversham, the Hon. W. G. Cavendish, M.P., Mr. Raymond Barker, Mr. Caldwell, Mr. Brandreth Gibbs, Rev. L. V. Harcourt, Mr. Wren Hoskyns, Colonel M'Douall, Mr. Slaney, M.P., Colonel Towneley, Mr. Wilkinson, and Mr. Wilson, of Stowlangtoft—

The Earl of Malmesbury, Secretary of State for Foreign Affairs, transmitted the report of Mr. Morgan, Her Majesty's Consul at Bahia, respecting some original deposits of guano (from which nitrate is extracted) existing in the province of Bahia. The Lords of the Committee of Privy Council for Trade transmitted the three boxes of sample of the guano referred to in the above despatch, and requested to be favoured with the result of any experiments that may be made with a view to ascertaining the value of this substance. Mr. Morgan's report states that favourable accounts have been given of the samples already sent to London, Liverpool, and Birmingham. The deposits exist in beds of limestone, some of them extending over twenty square leagues. The most available deposits are found on the road to the diamond districts. The chief drawback is the want of good roads, but that the formation of a railroad is in contemplation. There are also other and almost inexhaustible deposits in the neighbourhood of the River San Francesco, province of Piauhy. These altogether extend over a territory of upwards of 200 square leagues. The report proceeds to detail the process of extracting the nitre which is used to prepare gunpowder of a very ordinary quality, and to preserve meat and fish. The report concludes thus: "From information received from several of the proprietors of those deposits lying in the intended line, I believe, with the railroad, the primitive earth or manure could be replaced in England at £7 to £9 per ton. Should the trade in this article increase, either from competition or abundance, it is but natural to suppose it would be placed at a lower figure for the purposes of our commerce, inasmuch as the manure in question contains highly organized matter with a large quantity of real ammonia and nitrogen, alkalies, magnesia, sulphate and carbonate of lime."

On the motion of Mr. Wren Hoskyns, these communications were referred to the Chemical Committee with a view to the samples being analyzed by Dr. Voelcker, the Society's consulting chemist; and the thanks of the Council were ordered to be conveyed to the Earl of Malmesbury and to the Board of Trade for these communications.

A letter from Mr. Bullock Webster (dated from Athens) was read, in which he states that he has been devoting attention to the Vine disease, and that the application of sulphur has proved most successful in Greece, and that the same effect has been produced on blighted green crops. He can speak with confidence as to Potatoes, Beans, Peas, fruit trees, Roses, trees, &c., and that he has no doubt of its efficacy as regards both Turnips and Hops. He also states that the sulphur ought to be applied in a very fine powder in the early stage of the growth of the plant, as soon as any blight shows itself; it is applied either by means of a large tin pepper-box or small bellows (of which he enclosed a sketch). A woman can dress an acre of Vines per day. Scarcely any change will be observable in the crop for the first ten days; after that it becomes healthy. Should rain fall within five days after the application of the sulphur the operation has to be repeated.

A letter was read from Mr. Curtis, the entomologist, respecting the insects forwarded by order of the Council, and by which Mr. Greenwood's Mangel Wurzel crop had been nearly destroyed. Mr. Curtis states them to be the larvæ of a beetle which has at various times injured the crops of Mangel Wurzel in Ireland and in France. The beetle is the Silpha opaca, fully described in the Society's Journal (vol. viii., page 404, and plate S, figures 12 to 24). Mr. Curtis observes that notwithstanding the leaves being nearly or entirely consumed, the plants have been known to recover and to produce a fair crop. Mr. Curtis also transmitted the prospectus and the first number of an entire edition of his sixteen reports published in the Society's Journal, and which are now being reproduced in a complete separate form by Messrs. Blackie and Son, entitled "Farm Insects."

The thanks of the Council were ordered for each of the above communications.

The Council then adjourned.

At a Special Council held Wednesday, June 22, 1859, his Grace the Duke of Marlborough, President, in the chair, Lord Berners, Lord Feversham, Sir E. C. Kerrison, Bart., M.P., the Hon. W. G. Cavendish, M.P., the Hon. Col. Hood, Mr. Amos, Mr. Barnett, Mr. Bramston, M.P., Mr. Brandreth, Mr. Caldwell, Col. Challoner, Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. James Howard, Mr. Hudson (of Castleacre), Mr. Hutton, Mr. Jonas, Mr. Kinder, Mr. Lawes, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Shuttleworth, Mr. Slaney, M.P., Mr. Robert Smith, Mr. Banks Stanhope, M.P., Mr. H. S. Thompson, Mr. Torr, Mr. G. Turner, Mr. Jonas Webb, Mr. Burch Western, and Mr. H. Wilson.

The report of the Special Committee appointed to examine the past accounts of the Society was read, received, and confirmed—

It was moved by the Hon. Col. Hood, and seconded by Lord Berners, "That Mr. Hudson be dismissed from the office of Secretary."

The Special Committee (with the addition of the names of Mr. Fisher Hobbs and Mr. Brandreth) was reappointed to carry out certain recommendations contained in the above report, and instructions were given by the Council relative thereto.

On the motion of Mr. Brandreth, seconded by Col. Challoner, it was resolved, "That a Committee be appointed, consisting of the President, Vice-Presidents, Trustees, and the following members of the Council; the Hon. Col. Hood, Mr. Barnett, Mr. Jonas Webb, Mr. Wren Hoskyns, Mr. Torr, Mr. Fisher Hobbs, Mr. Milward, Mr. Brandreth Gibbs, Mr. Amos, and Mr. Brandreth, to take into consideration and report to the next general Council what in their opinion should be the general and particular duties of the Secretary, and the mode of his appointment.

Judges for the Warwick Show.—Col. Challoner, chairman of the Implement Committee, presented the report recommending the judges of implements.

Mr. Milward, chairman of the Live Stock Judges Committee, presented the report recommending the judges of live stock, cheese, and wool. These reports were received and confirmed.

STEWARD OF CHEESE AND WOOL.—On the motion of Mr. Brandreth Gibbs, Mr. Pain was elected to this office.

PRIZE ESSAY.—Mr. H. S. Thompson, chairman of the Journal Committee, reported the recommendation that the Prize of 25 Sovereigns for the best Report on the Agriculture of the Islands of Jersey, Guernsey, Alderney, and Sark, be awarded to the author of the Essay bearing the motto "Practical." The sealed envelope having been opened by the President, the author was declared to be C. P. Le Corme (Honorary Secretary to the Royal Jersey Agricultural Society), Beaumont, Jersey.

The Council decided several cases as to qualification of live stock and implements: also matters of detail connected with the approaching show at Warwick.

The Council then adjourned to its weekly meeting on Wednesday, the 29th inst., when Prof. Voelker's report on the Analysis of a Mangel root kept two years will be read.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JUNE.

The weather during this month has been unusually fine and vegetative in all parts of England. Even in our most backward districts the wheat crop has progressed with some rapidity; nevertheless, it has exhibited great luxuriance in each locality, and there is every prospect of a full average yield, notwithstanding that a portion of it has been laid upon some heavily-manured soils in Essex, Kent, and Middlesex, including Norfolk, Kent, and Cambridgeshire. The blooming time in the early counties has passed off remarkably well, and the sickle is likely to become in partial operation by the 15th of July. Barley is looking remarkably well, and the same may be said of oats and peas; but, in many quarters, beans are expected to be a partial failure.

The state of the wheat trade, and the rapid fall in prices from the late comparatively high point, have produced no little anxiety on the part of the growers in reference to the future. The commencement of the war in Piedmont naturally led to considerable excitement in the demand, and large parcels of wheat changed hands on speculation. Since, however, it has been understood that the war is likely to be localized in Italy, notwithstanding that Prussia is exhibiting a warlike feeling, the decline in value has been nearly as rapid as the late upward movement. At present, therefore, prices are nearly as low as they were prior to the commencement of hostilities. Within the last few days there has been more disposition shown to purchase wheat, and the quotations have slightly improved; but we see no reason to assume that any further advance of moment will take place in them. Of course much will depend upon the results of the war; in other words, any further complication of events, in which Prussia may be involved, may lead to a portion of our imports being cut off. This, by the way—even admitting that matters on the continent are in anything but a favourable position—is a contingency hardly to be expected; consequently, we incline to the opinion, that the aggregate importations of produce during the present year will be fully adequate to our wants. From the United States, even though prices there are declining, and even though harvest work has been commenced in the South, very little wheat or flour can be expected until quite the close of the year; but we must bear in mind that the grain and flour trade of France has now assumed proportions of great magnitude; indeed, so large is it, that the almost entire stoppage of our usual supplies from America has failed to have any influence upon price here, arising from the enormous quantities of produce shipped from the various ports in the north of France. The flour now received into London and Liverpool, being of a superior character, has readily found buyers, chiefly for mixing purposes, and the quantity received since the additional export duty was imposed, has considerably increased. Seeing that the export trade in France is not likely to fall off, and that we shall, consequently, receive quite as much as can be readily consumed, the deficiency from the United States is a matter of no importance to the consumers. Again, as regards the future, we must bear in mind, that the stocks of English wheat now on hand are still very large—that the warehoused supply of foreign is heavy—and that supplies from the Baltic are pouring in upon us fully up to the average of most years. Whilst this state of things continues, we can hardly venture to predict permanently rising markets for wheat; but, on the other hand, there is no reason to look forward to what may be termed depressed currencies, notwithstanding that a portion of our usual imports from Italy and the United States will not come forward at the usual period. The spring corn trade is likely to rule steady for some time, and, no doubt, the quotations, generally, will be well supported.

The hay-harvest has been commenced in the near counties, and its result is likely to be a most satisfactory one. The growth of both meadow and clover is considerably in excess of last year, and nearly, or quite, equal to 1857, in which year was produced one of the largest growths on record, and the greater portion of it has been got up in excellent condition. For the time of year, a full average quantity of old hay—both meadow and clover—is in stock, and we conclude, therefore, that prices during the remainder of the season will rule somewhat lower than at present. Straw, too, is very plentiful, and the highest quotation in London does not exceed 29s. per load. Meadow hay has changed hands at £2 15s. to £4 8s., and clover do. £4 to £5 8s. per load. The abundance of green food has tended materially to check any upward movement in the value of hay.

Although accounts have come to hand from time to time to the effect that stock is very scarce in some parts both of England and Scotland, large supplies continue on offer in nearly the whole of our cattle markets. Prices have, consequently, had a downward tendency. For the most part, both beasts and sheep have appeared in good saleable condition, and, in many instances, beasts of a most superior class have been exhibited both from Norfolk and Scotland.

Unfavourable reports have been spread in reference to the potato crop; but our impression is, that they are too highly coloured to command much attention. So far as we can learn from the best sources of information, the crop is in no danger whatever, as a whole. It is true, that a few instances may be met with, in which partial failures are observable; but, taking the crop as a whole, we believe that there is every reason to anticipate a most abundant growth, not only in England, but likewise in Scotland. Rather large supplies of old potatoes have come forward for the time of year, and the receipts of new have steadily increased. From France, Holland, Spain, and some other quarters, the imports have been liberal, and in fair condition, whilst they have changed hands at from 6s. to 11s. per cwt. A few very fine old potatoes have found buyers as high as 200s. per ton.

The clip of English wool this year has turned out a very large one. In the early part of the month the trade was in a depressed state, owing to the sudden falling off in the export demand; but it has since become more active, from foreign buyers having again made their appearance in the market, and a portion of the decline has been recovered. In the manufacturing districts rather increased quantities of wool have been worked up, chiefly in articles suited to the American markets, and the next series of public sales in London are expected to go off steadily, even though about 90,000 bales of colonial will be brought forward.

In Ireland and Scotland the grain trade has continued in a very inactive state on easier terms. Both the imports and exports of produce have been on a very moderate scale, and dealers generally have acted with more than usual caution in effecting purchases. Most of our correspondents agree in stating that the available stocks of grain, especially of wheat are good for the time of year.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Compared with the corresponding period in several previous years, the total supplies of sheep and lambs exhibited in the Metropolitan Cattle Market have been very large, viz., 159,650 head, against 144,280, in June, 1858; 108,480 in 1857; 112,110 in 1856; and 125,570 in 1855. The receipts of beasts, calves, and pigs have been seasonably good; whilst there has, perhaps, been a much greater weight of meat disposed of than usual. The excess in the arrivals has produced the usual result, viz., heaviness in the trade, and depression in prices; nevertheless, the latter still continue high, and, on the whole, remunerative to the breeders and feeders. But the decline in the value of fat stock has not been followed by any change of moment in the price of store animals, which, in most counties, are now held for what may be considered dangerously high currencies, so far as the future interests of the feeders are concerned. The high rates, however, are, we imagine, chiefly the result of a great abundance of pasture food, more particularly in the neighbourhood of London, and the somewhat active inquiry for half-fat beasts and sheep.

The Norfolk "season" for beasts is now drawing to a close, and it has certainly turned out a brilliant one, both as respects the number and weight of the animals brought forward. And here we may remark, that nearly two-thirds of the beasts received from that county during the past six months have been composed of crosses of a most superior character; in point of fact, not a few of them have been *too* good for the time of year. From Scotland, numerous beasts of heavy weights, and extremely fat—certainly fit for Christmas consumption—have been received; whilst it is stated, that a much finer race of animals than usual will be forwarded to the metropolis from Lincolnshire, Leicestershire, and Northamptonshire, between this and the end of the year.

We have had but trifling imports of beasts from the continent, and the arrivals from Spain and Portugal have not increased. The deficiency in the importations must be chiefly attributed to the stringency in the Custom House rules in the examination of the stock received from time to time. This stringency has been much declaimed against; but, from what we have frequently seen, it has become an imperative duty on the part of the authorities to prevent the introduction of disease into this country. The few sheep received from Holland have been in good condition; but the bulk of the imports of that stock has been derived from Germany in the shape of Merinoes, but which have sold at very low prices, viz., from 21s. to 27s. each. The supplies of both beasts and sheep in Holland are now increasing to some extent, and, eventually, they will find their way to this country, unless, indeed, they should continue in a state unfit for shipping purposes. Most of the sheep now imported from that country bear strong signs of crossing with some of our Hampshire Downs. The stock of winter food is not yet exhausted, and, for the most part, both beasts and sheep have continued to fare remarkably well, the great abundance of grass having been of the highest importance to the grazing community.

The imports of foreign stock into London during the month have been as follows:—

Beasts	1,058	head.
Sheep	12,848	,,
Lambs	2,728	,,
Calves	2,155	,,
Pigs	86	,,
Total	18,875	,,
Same time in 1858	17,720	head.
,, 1857	13,551	,,
,, 1856	10,136	,,

The total supplies from all sources, exhibited in the great Metropolitan Market, have been as under:—

Beasts	18,598	head.
Cows	505	,,
Sheep and lambs	159,650	,,
Calves	2,967	,,
Pigs	2,152	,,

COMPARISON OF SUPPLIES.

June.	Beasts.	Sheep & Lambs.	Calves.	Pigs.
1858....	18,492	144,280	2,972	3,115
1857....	20,063	108,480	2,404	2,125
1856....	17,896	112,110	1,839	2 740
1855....	19,173	125,570	2,209	3,180

Beef has sold at from 3s. to 4s. 8d.; mutton, 3s. 4d. to 5s. 2d.; lamb, 5s. to 6s. 4d.; veal, 4s. to 5s. 2d.; pork, 3s. to 4s. 2d. per 8lbs. to sink the offal, with the exception of lamb, these prices corresponding to June, 1858.

From Norfolk, Suffolk, Essex, and Cambridgeshire, 11,850 Scots, shorthorns, and crosses have come to hand; from other parts of England, 3,400 of various breeds; from Scotland, 1,070 Scots and crosses; and from Ireland, 323 oxen and heifers. The receipts of sheep from Ireland were 1,200, and of lambs 2,000 head.

Very limited supplies of meat have been on offer in Newgate and Leadenhall markets, arising from the hot weather. The trade, however, has been heavy, at a general reduction in prices of fully 2d. per 8 lbs.

CALENDAR OF AGRICULTURE.

The sowing of turnips is finished by the middle of this month, which is preferred in the Eastern Counties to avoid the fly and mildew. Drilled crops are constantly scuffled and hoed; and all weeds destroyed. Clay lands in fallow are prepared, and lime and dung provided. Stones and tiles are brought forward for draining, which is well performed during dry weather.

Hay harvest will be finished during this month. Convey the herbage as dried, and thatch the ricks when consolidated. Have thatch ready, and protect the ricks from rain with tarpaulin cloths. A light cloth may be suspended over ricks by pulleys, and save from violent rains.

Continue to fold the store sheep, both on pasture and arable lands. The improvement is cheap and effective.

Vetches and clovers will now be abundant Cut and carry the herbage in a fresh state for horses and cattle in the yards, and for milch cows at night in the yard and shed. Provide ample littering in the cattle-yards—the dung made will repay any attentions.

The sheep must be protected from the fly by the dredging box; and make cots in the fields from the searching heats. Put mares to the stallion regularly. Provide water in the pasture-fields, and keep fences in good repair, with gates and wickets.

In early seasons and climates, corn-harvesting will begin in the end of the month, with peas, barley, and rye. The barns and rick-stands must be ready to receive the crops, which may soon be carried.

CALENDAR OF GARDENING.

Transplant brocoli at various times for an early and spring supply, and in moist state of the ground. In dry weather, fill holes with water beneath the plant. May-sown cauliflower are treated in the same way. Sow endive twice in the month. Sow evenly the last crop of scarlet-runners and of French beans. A row or two of cos-lettuce, radish, white and red turnip varieties, some carrots, onions, and salading as required. Earth celery very carefully, with one hand holding the plant, and the other applies the soil close around the lower parts, but not so high as the growing kernel. In dry weather water the trenches very copiously, in order to promote full growth. Sow a full crop of turnips—early Dutch, white, and yellow—for the use of late autumn and during winter.

After the second week sow cabbage seeds for colewerts, called greens, one of the sweetest of spring vegetables.

Transplant leeks on plots richly manured with guano and sulphate of ammonia. In case-like balls place a leek over some water to fix the roots.

Transplant cucumbers and vegetable-marrow plants from the hot-beds. Dig a hole on warm ground, put in rich leafy manure, and cover lightly with earth; plant, water, and cover with hand-glasses till the growth is established, and then gradually train out the runners. Stop the points occasionally to obtain later cuts.

Take up and dry flower bulbs, and larger pinks and carnations. Propagate geraniums by cuttings in sand and leafy mould.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The last week in May, which could not be included in our review of that month, closed fine, but with a further reduction in the price of wheat of 2s. to 3s. per quarter. The month of June has, on the whole, been favourable to the crops. The first week had an abundance of rain, with a very growing temperature; the middle of the month being very stormy, with fine but variable weather to the close. The heavy storms laid a good deal of corn; but this occurring before the earing, most of it has recovered, and the worst pieces have improved beyond expectation. The early equal growth, followed finally with abundant moisture, ensures a great bulk of straw; and as the blooming time has hitherto been propitious, a full average gathering may be expected. The hay crop has been fair, the growth though late being very rapid, and, with the exception of some forward pieces, the ricks are being got up in fine condition; but a scarcity of hands, from the absence of the Irish this season, makes the operation slow and expensive. The increased fall of rain has replenished the ponds and wells; and though an average supply is not yet secured, there is now a fair provision.

The month, till the last week, shows a continued decline in prices, making the rates about 4s. per qr. lower, and very little above the low quotations which so long ruled, though the averages, which are generally a fortnight or three weeks behind the markets, do not show the entire reduction. This decline may be traced to several causes. The sudden outbreak of the war, with the notion that Russia was allied to France, made an unusual advance in the beginning of May, which produced as sudden a reaction when this alleged treaty was disclaimed, leading to the impression that the war would be restricted to Northern Italy. The French and other European markets not partaking of the excitement here, and our own course being that of neutrals, the large advance here produced corresponding orders and heavy foreign supplies; and these arriving during favourable weather, both speculators and growers lost heart, and eventually nearly the whole improvement was lost. But with the onward progress of the French arms and machinations, the movement of Prussian troops towards the Rhine, the gatherings of Russian armies on the frontiers of Germany, and the revolutionary outbreaks in Southern Italy, who can say that the political sky is clear? while the critical time of harvest is nearing, with the weather somewhat broken.

There has, too, been a lavish use of wheat for cattle feed. The price was so low in autumn that we hear less has this year been grown. The tide of population still swells; foreign stocks have everywhere much diminished; storms have done some damage in France; and though prospects in America are good, but little there is left on hand. Immigration, too, keeps going on in that country; and prices are almost one-third more than our own, there being now no port in the world to meet English rates; supplies therefore must diminish; and should a firm tone be taken by the country markets, London must follow.

There are reports, again, of the disease in potatoes; and should there be much wet, and a free development of electricity in the atmosphere, the crop, though looking well, will not be safe. Spring corn is progressing favourably, but, excepting beans, have very few pods in some places.

Harvest has commenced in Algeria, Italy, and some parts of the southern states of America—the crops being well reported. The following rates show the prices at present ruling in foreign ports:—

At Dantzic first quality wheat is still worth 55s. per qr., which is about the same that it brings here. At Berlin and Konigsburg the price was about 48s. per qr. At Hambro' fine 62lbs. was worth 50s. per qr. At Stettin fine Pomeranian 47s. per qr. The quotation at Paris is about 41s. per qr.; at Nantes, 41s. to 44s. 6d. per qr.; at Bordeaux, 44s. 6d. to

46s. per qr. The price of native wheat at Antwerp was 45s. per qr.; Guelders at Amsterdam, 43s. per qr. Sardinian wheat, at Genoa, notwithstanding large arrivals, was quoted 56s. per qr.; and Berdianski, 49s. per qr. At Odessa the range of quotations was from 29s. to 42s. per qr. At New York the common sort, called Milwaukie Club, was 43s. 4d. per 480lbs.; Southern red, 61s. 8d per 480lbs.; white, 63s. 4d. per 480lbs.; and white Kentucky, 66s. 8d. per 480lbs. The best Genessee flour being equal to 55s. 8d. per English sack, against our own top price of 46s. Prices of best red winter at Chicago, 1 dollar 50 cents per bush.=50s. per qr.; white, 1 dollar 60 cents per bush.=53s. 4d. per qr. of 480lbs.

The first Monday commenced on a small English and liberal foreign wheat supply. The samples sent up from Kent and Essex during the morning were less in number than usual; millers, however, appearing to expect a further reduction, were indisposed to give former rates except in a few instances, and as holders were disinclined to yield, the bulk, small as it was, was mostly left over for sale. In foreign scarcely anything was passing. No advantage, however, resulted from holding over, as Wednesday was not a more favourable day, and on Friday sales could only be made by yielding 1s. to 2s. per qr. The country markets were either supported with difficulty, or accepted lower rates. Newcastle, Spalding, and Hull were nominally unaltered; Leeds, Manchester, Birmingham, Boston, and Wakefield only made a decline of 1s.; but Sleaford, Bristol, and Gloucester were 1s. to 2s. cheaper, and some few places 2s. to 3s. lower. Liverpool, on Tuesday, was 4d. to 6d. per cental down, and Friday made prices 3d. per cental worse.

The second Monday opened with a small English supply; but from the continent there was no less than 61,500 qrs.: it therefore mattered little that the near counties sent up but few samples in the morning, the market being quite taken aback by the foreign arrival. Still, there were buyers of English at 3s. to 4s. per qr. lower in quantity, and as this heavy reduction was declined, very little was done, and that at about 2s. to 3s. less money than could be procured on the previous Monday, the principal part of the samples being again left over, from which no benefit was eventually derived. To sell foreign a large sacrifice would have been necessary, and therefore the cargoes arrived were ordered to granary at once, in expectation of better markets. The country markets were staggered by the London advices, and all sales made were on lower terms. Melton Mowbray did not reduce rates beyond 1s. to 2s. per qr; but generally the reduction was more. Newbury, Manchester, Wolverhampton, Gloucester, and Newark were 2s. to 3s. per qr. cheaper; Birmingham was fully 3s. per qr. down; Leeds, Boston, Market Rasen, and some other places were 3s. to 4s. per qr. cheaper; and at Gainsborough there was a perfect stagnation in trade. Liverpool, on Tuesday, was 4d. to 6d. per cental cheaper; but on Friday there was a better sale at previous rates. The Scotch markets, though the weather was too dry, were all affected by the advices from the South; Glasgow, with large arrivals, finding but a retail trade at 2s. per qr. decline, and sales at Edinburgh being only practicable on lower terms. In Ireland the same state of things obtained, there being large arrivals there from Nantes and other parts of France, especially at Waterford, where wheat consequently fell 1s. to 1s. 6d. per brl.

The third Monday had a large foreign supply, but scarcely more than one-third of that noted on the second. The English supply was somewhat improved, and with moderate contributions from Essex and Kent for the morning, made a finer show. The best picked lots went off at 1s. less money, but ordinary runs were 2s. per qr. cheaper: still, the predominant feeling being that about the lowest point was reached, there was more disposition to do business than for some time. Foreign factors not being disposed to make lower offers, there was very little done except for mixing. Country advices were none of them so depressed as London, many places quoting no decline on previous rates; as Hull, Sheffield, Louth, and Lynn. Bristol, Leeds, and Newbury were 1s. per qr. higher; Manchester, Birmingham, Spalding, and Boston were up 1s. to 2s.; and Stockton-on-Tees, with a small supply, advanced 2s. to 3s. per qr. Liverpool, on Tuesday, was better attended, and found a fair trade for wheat at 2d. per cental improvement, flour having a better sale. Friday's report noted an improved attendance, with better sale at former prices. The Scotch and some Irish markets were slightly dearer.

The fourth Monday was again well supplied from abroad, though there was less of home growth. Kent and Essex sent up but very few samples, for which at the commencement 2s. to 3s. per qr. more money was demanded, in consequence of the contract out, but eventually sales were only slow at 1s. per qr. improvement, there not being the least stir in the foreign trade.

The four weeks' supply into London has been 16,192 qrs. English, 125,835 qrs. foreign, against 17,128 qrs. English, 94,391 qrs. foreign in June last year. The imports into the United Kingdom in May were 507,546 qrs. wheat, 585,505 cwt. Flour. The exports for the four weeks in June were nil.

The flour trade for the three weeks in June has been in a continuous decline, with much difficulty in sales. On the third Monday town millers reduced their top price from 50s. to 46s. per sack, but country sorts have been cheaper every Monday for three weeks, about 2s. per sack, and French qualities, of which there have been heavy imports, have been irregular in price, and have been equally depressed. On the fourth Monday Norfolks were 2s. per sack higher, and French also improved 1s. per sack.

The four weeks' imports into London have been as follows, viz.:—Of country sorts 52,845 sacks, of foreign 43,732 sacks, chiefly French, with 736 barrels. The exports in the same time were 187 cwts. only.

The barley trade for the four weeks in June has been very steady, the heavy exports to France having relieved the markets from the pressure of a quantity of the lower qualities, malting sorts having been of nominal value, and the shortness of the English arrivals show the crop to be about used up; but from abroad plenty has continued to arrive, notwithstanding the reported deficiency of the crops. Good sweet parcels for distillation and grinding have about kept their value, and closed firm; but stale Odessa, and such like sorts, have declined in value since the falling off of the French demand.

The imports into London during the four weeks were 687 qrs. English, 29,697 qrs. foreign, against 1,036 qrs. English, 22,753 qrs. foreign in June, 1858. The exports in four weeks have reached to 41,111 qrs., making the amount, since the beginning of May, 67,111 qrs., a quantity unprecedented, and wholly traceable to the war in Italy, where it is wanted for the French and Sardinian cavalry. The imports into the United Kingdom, in May last, were 105,321 qrs.

The malt trade has been dull, and the article has fallen in value 2s. to 3s. per qr.

The oat trade has been unusually heavy for three-fourths of the month, and gradually declining, the early appearance of Riga sorts, in quantity, having rather put back the market; this description has, therefore, more especially given way, say, in all, from 1s. to 1s. 6d. per qr., the decline in other sorts being 6d. to 1s.; but a firmer feeling has been evinced at the month's close, and should the arrivals be less, and the weather at all unfavourable, we may expect some rally in this grain. On the last Monday prices rose 6d. per qr.

The London imports for four weeks have been 340 qrs. English, 5,058 qrs. Scotch, 6,372 qrs. Irish, 104,437 qrs. foreign; or a total of 116,207 qrs.; against 1,154 qrs. English 2,102 qrs. Scotch, 1,297 qrs. Irish, 129,874 qrs. foreign in June, 1858. The imports into the United Kingdom for May last were 125,208 qrs.; the exports in June 6,915 qrs.

Of beans the foreign arrivals have been very small, and the English supplies but moderate. Business, as usual at this time of the year, has been dull, more especially since the decline in Oats and Indian Corn; but prices have been about the same, the quantity being too small to weigh on markets. As this pulse is still relatively dear, there seems little room for improvement as the demand falls of, though there is likely to be but a short supply from Egypt, this season, from the partial failure of the crop there. The imports into London, for four weeks, have been as follows:—1,390 qrs. English, 527 qrs. foreign, against 1,217 qrs. English, and 3,106 qrs. foreign in June, 1858. The total imports into the United Kingdom, in May last, were 19,716 qrs.

Very few English peas have come to market, and only a moderate quantity of boilers from abroad. The scarcity of duns and maples have kept up prices; but business has been retail, and navy contracts have maintained the value of white boilers, which lately were being used for horses, as cheaper than beans. The imports for the four weeks into London have been 259 qrs. English, 1,978 qrs. foreign, against 302 qrs. English, 595 qrs. foreign, in June, 1858. The imports into the whole kingdom for May last were 9,254 qrs.

The arrivals of linseed have been moderate during the month, viz., 17,706 qrs., and the exports 2,444 qrs. The trade has lost something of its firmness, though there does not seem much probability of a heavy decline for some time, the only fall being about 1s. per qr.; cakes have not been so readily placed, but the rates have not given way, fat stock having realized good prices for some time.

As respects the seed trade, it has generally been in perfect calm, the little stock of cloverseed, both in red qualities and white, being below a large speculative trade. The plants look very promising as yet for hay, but the seed crop is too distant to form any opinion as to the probable yield. Canaryseed has been unusually steady, so has hempseed. In mustardseed scarcely anything has passed. Rapeseed is fast approaching to maturity, cutting having commenced generally in France; fine weather, therefore, is important. In carraway, coriander, and other seeds, prices have remained almost stationary, with but a retail consumption.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter.
Wheat, Essex and Kent, white .... 41 to 51
,, red 39 47
Norfolk, Linc., and Yorks., red 39 47
Barley, malting ...... — to 33 .... Chevalier 33 37
Grinding .... 28 29 .... Distilling 30 31
Malt, Essex, Norfolk, and Suffolk .... 51 to 59 fine 60 66
Kingston. Ware, and town made .. 51 59 ,, 60 66
Brown. .... 50 51 — —
Rye .... new — — 30 31
Oats, English, feed .... 21 25...... Potato...... 26 29
Scotch, feed........ 22 26...... Potato...... 25 29
Irish, feed, white .... 21 23 fine 25 28
Ditto, black........ 21 24 ,, — 25
Beans, Mazagan........ 39 41...... Ticks 39 41
Harrow .... 40 44...... Pigeon...... 45 48
Peas, new, white, boilers 44 48 Maple 44 46.. Grey 40 44
Flour, per sack of 280lbs., Town, Households 40s., fine 41 46
Country.. nominal .. 32 34 ...... Households.. 35 39
Norfolk and Suffolk, ex-ship 32 33

IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat.		Barley.		Oats.		Rye.		Beans		Peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d
May 14, 1859	52	5	32	10	25	4	33	4	45	1	42	[illegible]
May 21, 1859	54	4	33	7	26	3	35	3	47	2	45	5
May 28, 1859	53	6	33	6	25	9	33	8	46	6	42	10
June 4, 1859	53	5	33	8	26	1	37	7	47	0	40	5
June 11, 1859	51	5	31	8	25	11	41	9	45	0	41	5
June 18, 1859	49	11	31	5	24	11	36	9	46	7	40	3
Aggregate average	52	6	32	9	25	9	36	5	46	3	42	1
Same time last year	44	7	34	5	26	0	32	9	41	8	42	10

PRICES OF SEEDS.

BRITISH SEEDS.

Trefoil, new........ —s. to —s.
Tares, Winter, new, per bushel .... —s. to —s.
Mustardseed, per bush., new 12s. to 17s, brown 10s. to 12s.
Coriander, per cwt........ 14s. to 16s.
Canary, per qr........ 64s. to 66s.
Linseed, per qr., sowing —s. to 64s.. crushing 54s. to 58s.
Linseed Cakes, per ton .... £9 10s. to £10 10s.
Rapeseed, per qr........ 76s. to 78s.
Rape Cake, per ton .... £5 10s. to £6 0s.

HOP MARKET.

LONDON, Monday, June 27.—Our market during the past week has presented a very languid character, but few sales being effected, and those at prices much below the nominal value. The bine, on the whole, has made favourable progress; but this morning, reports speak of fresh fly in several districts, and of considerable increase of blight in Worcester, Farnham and the country parishes. The duty has been backed at £180,000.
Mease & Wild.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS, June 27.—For the time of year a fair average supply of old potatoes is on sale in these markets. The demand is inactive, and prices may be quoted at from 60s. to 200s. per ton. New potatoes are coming more freely to hand, and sales progress steadily, as follows: English, 7s. to 11s.; Jersey, 7s. to 10s.; Scilly, 6s. to 10s.; Spanish, 6s. to 8s.; French, 8s. to 10s per cwt. Last week's imports were 9,458 baskets from Rotterdam, 168 from Antwerp, 507 from Dunkirk, 29 from Boulogne, 50 sacks from Rouen, and 861 boxes 363 baskets from Lisbon.

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IMPORTANT TO FLOCKMASTERS.

THOMAS BIGG,

AGRICULTURAL AND VETERINARY CHEMIST,

BY APPOINTMENT, TO H.R.H. THE PRINCE CONSORT, K.G., &c.

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Prepared only by Thomas Bigg, Chemist, &c., at his Manufac-y as above, and sold as follows, although any other quantity y be had, if required :—

4 lb. for	20 sheep, price, jar included ……	£0	2	0
6 lb.	30 ,, ,, ,, ……	0	3	0
8 lb.	40 ,, ,, ,, ……	0	4	0
10 lb.	50 ,, ,, ,, ……	0	5	0
20 lb.	100 ,, ,, (cask and measure	0	10	0
30 lb.	150 ,, ,, included)	0	15	0
40 lb.	200 ,, ,, ,, ……	1	0	0
50 lb.	250 ,, ,, ,, ……	1	3	6
60 lb.	300 ,, ,, ,, ……	1	7	6
80 lb.	400 ,, ,, ,, ……	1	17	6
100 lb.	500 ,, ,, ,, ……	2	5	0

ould any Flockmaster prefer boiling the Composition, it will ually effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes lamb. Price **5**s. per gallon—sufficient on an average for ty Sheep (according to the virulence of the disease); also in ne quart bottles, 1s. 3d. each.

IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.

Dear Sir,—In answer to yours of the 4th inst, which would e been replied to before this had I been at home, I have ch pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and that it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards. and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

"I remain, dear Sir, your obedient servant,
"For JOHN TINGEY, Esq.,
"To Mr. Thomas Bigg." "R. RENNY.

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Ditto ditto with Iron-bar Drainer	5	0	0
Ditto ditto ………	4	0	0
Ditto, plain, with Wooden Drainer………	3	0	0

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No. 2, Vol. XVI.] AUGUST, 1859. [Third Series.

THE

FARMER'S MAGAZINE,

AND

MONTHLY JOURNAL

OF

THE AGRICULTURAL INTEREST.

Dedicated
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LONDON:
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ROGERSON AND TUXFORD,] [PRINTERS, 246, STRAND.

DR. HASSALL

ON

THORLEY'S FOOD FOR CATTLE.

FROM THE "MARK LANE EXPRESS," 10th JAN., 1859.

74, Wimpole Street, Cavendish Square, 21*st December*, 1858.

Having, on more than one occasion, been requested to make an analysis of Thorley's Well-known Food for Cattle, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of Thorley's Food for Cattle. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, thus, to the composition of Thorley's Food for Cattle, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing Thorley's Food for Cattle with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others, at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more valuable, but more expensive, articles. In some of the Foods I have detected ingredients which are positively hurtful.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. Thorley's Food for Cattle is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the cleansing, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of Thorley's Food this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of Thorley's Food, they would be unable to extract all the nourishment which such articles actually contain. I consider, then, that the use of Thorley's Food is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—Thorley's Food for Cattle as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,

Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected;" &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

Sir,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum*, and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-pint) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

THE FARMER'S MAGAZINE.

AUGUST, 1859.

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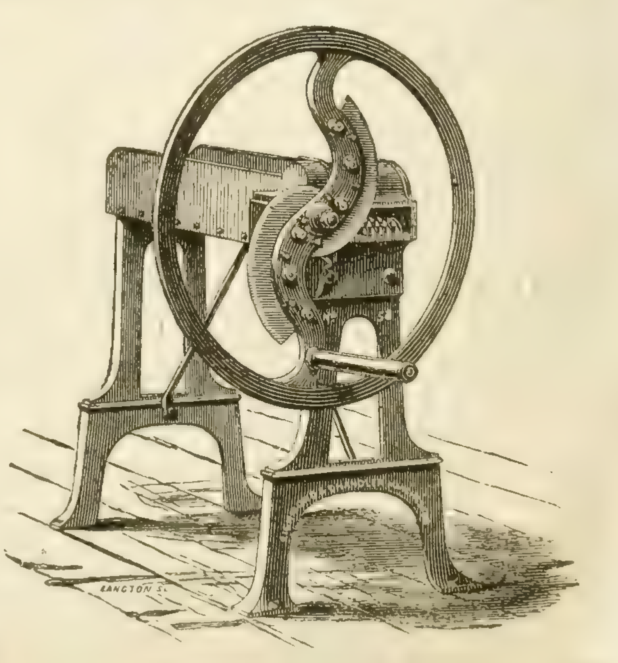
[ADVERTISEMENT.]

THE IMPLEMENT HOUSES OF ENGLAND.

MESSRS. RICHMOND AND CHANDLER, AT BARNSTAPLE.

[WITH A SPECIAL ILLUSTRATION.]

In reviewing the actual novelties, few in number, of the Barnstaple exhibition, where the prize system was for the first time abandoned, and the practical demand became the true test of merit in an implement, we pointed out two or three improvements in which the firm of Messrs. Richmond and Chandler, of Liverpool and Manchester, had succeeded in serving the agricultural public in the most remarkable way possible, inasmuch as a celebrated implement of theirs was thus offered in an improved condition at a reduced cost! The improvements in question were effected upon their chaff-cutter by the case-hardening of the working parts under an American patent held by them, so as to prevent the ordinary tear and wear—by inclosing the small toothed wheels in a close-fitting case or cover, which protects them from obstruction and injury, whilst it affords a new bearing for the fly-wheel shaft—and, finally, by introducing other equally *practical* improvements, the machine is sustained in a state of efficiency. Imagine the price of a machine so manifestly improved in its whole action reduced so low as £2 10s., and then inquire "who would be without it?" We are so much struck with the improved implement, its usefulness, and the fact of such a means of chopping and preparing cattle-feed being brought within every one's reach, that, contrary to our custom, we have obtained the favour of an engraving of it (hitherto unpublished) from the makers. In this illustration will be observed the various improvements and their details to which we have adverted. The engraving represents the No. 58. The No. 4 or New Patent Chaff-Cutter is of great size and power; and it is fitted with the new patent steel mouth-piece, to which too much attention cannot be paid, it being one (if not the most important of all) of the improvements recently introduced in chaff-cutters. The bearings and working parts of this machine are less in number than any other. Being intended either for horse, steam, or water-power, it is constructed with great solidity, and firmly bolted and stayed together. The accuracy of the fitting ensures great durability, while its strength, simplicity, and lightness of power have gained it the character of being one of the best chaff-cutters of the day. The price is £10. The illustration, applies, however, to the smaller cutters: No. 58, at £2 10s., with its toothed rollers and working parts covered to protect them from dirt and accidents—No. 57, at £3 15s., with its roller adjustments similar to larger machines. The new patent, No. 3, which has received so many prizes at home and abroad, is fitted not only with the toothed rollers, but *the steel mouth-piece*, the superiority of which cannot be overrated, since, being harder than the knives, it is not, as in other machines, worn away by friction, but offers always a straight and sharp edge for the knives to cut against. At £7 cost, it is constructed all of iron, has brass bearings, works by bevel-wheels instead of a worm, and is encased to prevent accidents or injury from dust.



The courtesy of the firm has not stopped here, but in addition to the foregoing engraving we have also had placed in our hands a handsome *fasciculus* of large drawings (to scale) delineating all the chief articles of Messrs. Richmond and Chandler's manufacture, and all their parts in mechanical detail. To us this is a singularly interesting work; our only regret is that we cannot convey its contents bodily to our readers, but we have no doubt that the customers of the firm will be able to obtain it on application to the house itself. It is generously issued by them to supply a want, felt in the trade at large, of correct geometrical drawings of implements, illustrating their sizes and proportions, and presents along with letter-press details of prices, descriptions, and advantages of their machines, front and side elevations, on the scale of 1½ inch to 1 foot (in short, working drawings) of the different orders of chaff-cutters in great varieties and corn-crushers, improved turnip-cutters, and steaming apparatus on the scale of 1 inch to 1 foot; and finally, improved horse-works with intermediate motion, both plan and elevation, on the scale of ¾ inch to 1 foot.

No. 7 Chaff-cutter (new machine.)—It remains only to add, that one of the chief points of difference between this and other machines is the employment of two pair of feed rollers, each acting independently of the other; the back pair rises higher than the front, and the tooth or hook is of a different form. By these means choking or irregularity of feed is placed beyond possibility. The before-mentioned steel mouth-piece is fitted in this machine. In the mode of setting or adjusting the knives there is also a great improvement, whereby it may be readily accomplished by an inexperienced person. It is possessed of immense strength, fitted with the stop motion for arresting the rollers, and is capable of cutting 1½ tons of short chaff per hour at a price of £20.

Gorse-cutting machines may be made of the chaff-cutters Nos. 3, 4, and 7, and many prizes testify to Messrs. Richmond and Chandler's success in this adaptation, so valuable on many of the wilds of Dorset. These machines by one operation reduce the gorse to a fit state for consumption by either horses or cows, the prickle being effectually destroyed, and a pulp of easy mastication produced. As a hay-cutter its properties are in no way interfered with, a simple alteration in the gearing being all that is required to effect the change either way. The prices are the same as for chaff-cutters. Throughout the manufacture of the whole of these machines the greatest care has been taken to avoid all useless or cumbersome movements, every end being attained in the most direct and mechanical manner; the result is that the friction being reduced to a minimum, the wear and tear and the power required in working the machine are greatly relieved.

The corn-crushing mill, again, is constructed on a principle which partakes of *cutting* and *bruising*, accomplished by means of spirally fluted rollers revolving at different speeds. A screw on the feed plate at the back regulates the supply of grain delivered to the rollers, conformable in quantity to the power employed. A screw in front regulates the parallel adjustment for the rollers, and thus the grain may be crushed to any degree. The size of the roller is 7 inches by 3½, and the price of the mills £5 5s., £6 10s., and (specially adapted for power, mounted on a strong iron frame, the *counter-shaft* noteworthy for an improvement by means of which its rollers are relieved from all strain and kept perfectly parallel, the fly-wheel having a velocity double that of the rollers, and a guard in front preventing the escape of uncrushed grain), size of rollers 11 inches by 6½, £10. No. 4, of the same construction, but of greater capacity, and may without danger to the working parts be driven 200 revolutions per minute—rollers 14 inches by 8, £14. The rollers in these instances are spirally fluted and casehardened according to the American process, for which Messrs. Richmond and Chandler hold the patent; and this peculiar method of hardening rollers whilst rendering the surface as hard and durable as the best steel, yet admits of their being at any future period softened and refluted equal to new.

Their malt mills, although of the same construction as the corn-crushers, are fitted with plain metal rollers, as required by the recent Excise Act. But No. 5 malt mill, prepared expressly for large breweries or maltsters where large quantities require to be crushed in a short time, is the most efficient mill ever manufactured.

The linseed and oat mills have the fluted rollers and scrapers to prevent clogging.

The turnip-cutters consist of a heavy fly-wheel, on which is fitted a turned wrought-iron shaft, and work in bored bearings on a wooden frame. Capable of cutting a barrowful a minute, they cost £3 and £4 10s. No. 3, however, is of new and improved construction, made entirely of iron to match the chaff-cutters. By means of a wing in the centre of the hopper the roots are turned to either side, and as the handle may be turned either way, it thus becomes a double action slicer. No. 4, moreover, cuts both slices for cattle and strips for sheep. Hinges on the front of the hopper yield access for grinding or renewing the knives.

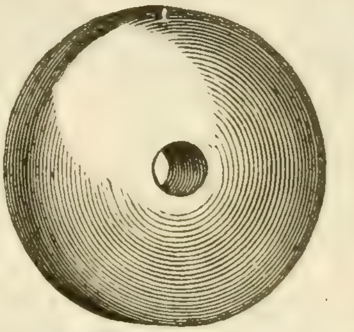
In the steaming apparatus there is a steam boiler fitted with supply cistern, water gauge, safety valve, connected with pipe and tap to wrought-iron pans, swung on brackets so as to be turned over to empty without removal. It will steam every kind of root, hay, corn, chaff, &c., and also boil linseed or oatmeal.

The construction of the new and improved horse gears for driving chaff-cutters, corn-crushers, or other small machines, is peculiarly strong, compact, and simple. There are in the frame only two castings, insuring perfect stability and freedom from strain; a spur in place of a bevel wheel imparts along with unusual solidity lightness of draught. The drawing shafts are trussed with adjustable iron rods, and the wheels of the intermediate motion encased. The price of one-horse £12 10s., of two-horse £14 10s.

Messrs. Richmond and Chandler having been largely instrumental in the introduction of Nicholson's Haymaker, it may be interesting to our readers to know that recent improvements have been effected upon this valuable implement; but that these will not, for at least the present year, be applied to haymakers other than those supplied by Messrs. Richmond and Chandler, in recognition on the part of Mr. Nicholson of a practical suggestion made by the firm, which has induced him to give them for the present season the exclusive benefit. This machine is quite suited to every district. It may be recollected that it obtained the first prize at Salisbury. It scattered the heavy lumps of grass with perfect ease. The judges could not clog it. Its teeth are good in form, and it clears itself without difficulty by a rapid and good backward motion. Mr. Nicholson has since effected his improvements by dispensing with the extra pinions for the reverse action, the principal cause of breakage and undue wear. This is accomplished by having in each axle box two distinct cogwheels, a spur wheel for the forward motion, and an annular or internal wheel for the reverse, diminishing friction and draught.

A quite new instrument is Carr's patent, for disintegrating and mixing conglomerated phosphates, &c., and for pulverising various substances, frangible by percussion. This machine, costing £40, will break up, pulverise, and perfectly mix, 20 or 30 tons daily, whether of hard or soft, damp and conglomerated phosphates, guano, &c., without inconvenience or choking. It consists of four strong cylindrical iron cages of various sizes, concentrically arranged one within another on a horizontal axle, on which they revolve with great velocity in contrary directions by means of straight and crossed straps. The centrifugal action drives the material shovelled through a central opening to the outermost periphery, where it is delivered granulated as finely as gunpowder.

We shall now only notice the Patent Bread Making Machine for kneading dough by mechanical means, more thoroughly mixing the ingredients, and thus improving the bread, besides shortening the labour.—*Warwick Advertiser, July 4th*, 1859.



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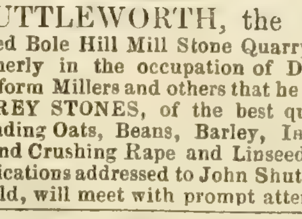
N.B. Any applications addressed to John Shuttleworth, Hathersage, near Sheffield, will meet with prompt attention.



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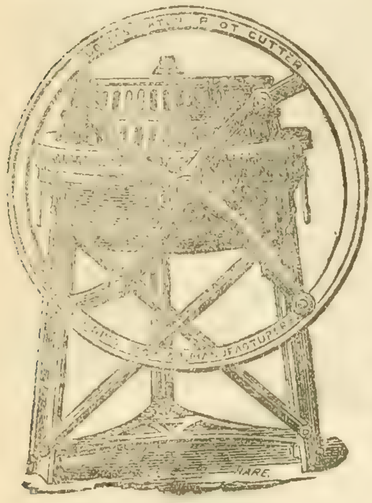

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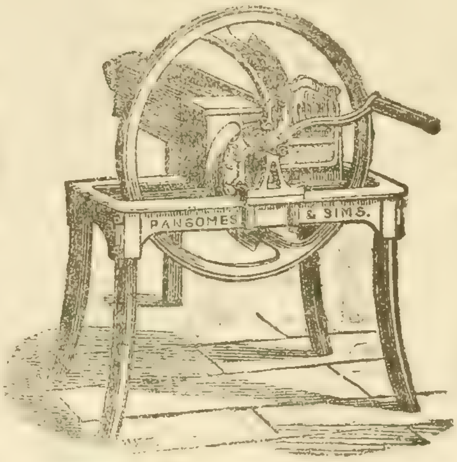

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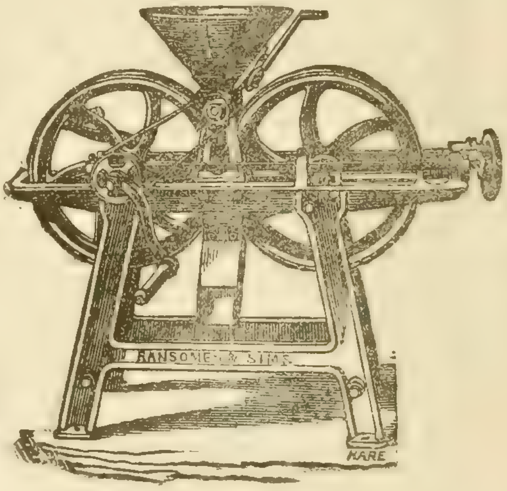

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Are strongly and confidently recommended for preventing GANGRENE or MORTIFICATION after Lambing or Calving, and for Healing CUTS, STABS, WOUNDS, BRUISES, STRAINS, SWELLINGS, &c., &c.. As these Oils are in constant use by some of the most celebrated Breeders in the world, and have maintained a reputation about fifty years, it would be superfluous to enlarge upon their value and importance. Pints, 2s. 6d., Quarts, 5s. Prepared by J. H. Cuff, No. 10, Smithfield Market, London, and sold by Drnggists and Medicine Vendors. *None is Genuine unless signed by J. H. CUFF in writing.*

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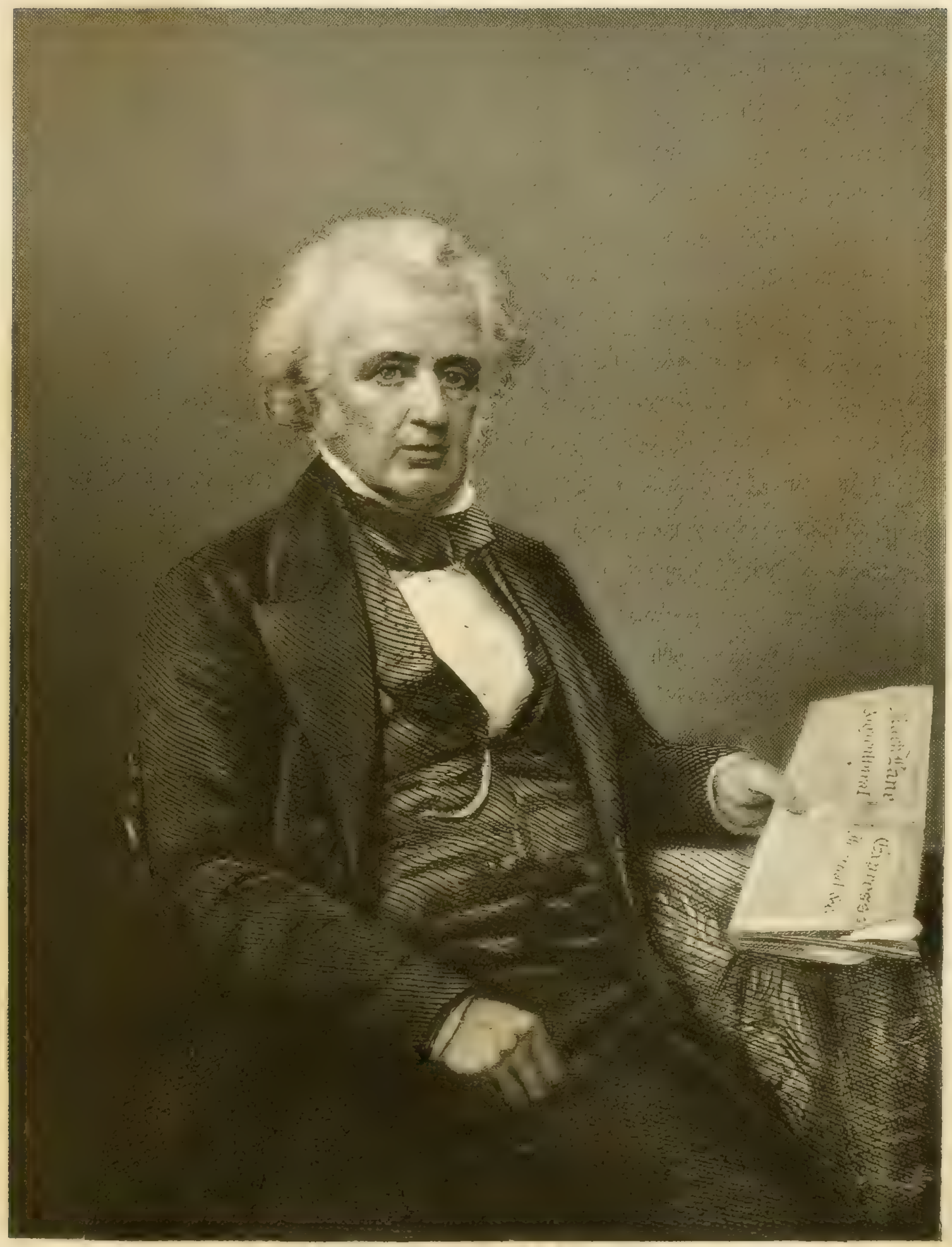

Yours Truly
John Rogerson

THE FARMER'S MAGAZINE.

AUGUST, 1859.

PLATE I.

PORTRAIT OF MR. JOHN ROGERSON.

PLATE II.

THE GREAT MOGUL; A SHORTHORN BULL.

THE PROPERTY OF STEWART MARJORIBANKS, ESQ., OF BUSHEY GROVE, WATFORD, HERTS.

MR. JOHN ROGERSON.

Mr. **John Rogerson** was born at Sotby, in the county of Lincoln, on the 11th of November, 1782. Sotby lies right in the heart of the Wolds, and is almost central between Horncastle and Louth. The Rogersons had for generations held a farm of some five hundred acres here under the Vyners of Gautly, and Mr. Rogerson's house was long the acknowledged rendezvous for the famous coursing parties at one period held upon the estate. The father of the subject of this notice, and himself a John Rogerson, in connection with Mr. Codd, of Ranby, first introduced the improved Leicesters into Lincolnshire; and the celebrated Bakewell, of Dishley, was for many years in the habit of inspecting their flocks. The Sotby bullocks, too, are yet well remembered, as even then fed upon oilcake, and showing to great advantage at the Lincoln April fair.

The son John was educated at Scamelsby, where he evinced a decided talent for landscape drawing and land-surveying. In fact, so great was his proficiency in this way, that immediately after leaving school he had the offer of a very lucrative engagement, by an eminent engineer and surveyor, at Lincoln. The father, however, had died when his sons were yet boys, but it was still determined that John and his brother, the late lamented Joseph Rogerson, should carry on the farm, and they entered upon it accordingly in 1803, just when the elder brother had attained his majority. They continued their occupation for over thirteen years, the younger attending more to the home business of the farm, and the other to the markets, for the sale of their stock and produce. Still Mr. John Rogerson had been thoroughly instructed as a practical farmer, and some of his successful experiments in the drilling of wheat, made no little sensation at that comparatively early period in the history of improved agriculture. He was also considered a capital judge of stock, and remarkable for telling the weight and quality of both beasts and sheep before they were slaughtered. In truth he had some experience in this way, and learnt many a useful hint from the butcher himself. Then he sowed his own turnip and clover seed, as well as a portion of his corn crop, and was one of the best ploughmen in the district—his head waggoner, Edward Scholey, who once took the prize at Horncastle, being almost his only superior.

But in the course of a few years Mr. Rogerson got rather beyond the mere proficiency of practical farming, and transacted other business to a considerable extent. He attended three markets a week regularly—Boston on Wednesday, Lincoln on Friday, and Horncastle on Saturday. Lincoln is a good sixteen miles from Sotby, and the usual ride there before breakfast is still spoken of as a fine thing for creating an appetite, despite "the other glass," the jolly good fellows of those days might have had the night before. One great feature sprung from Mr. Rogerson's connection with commerce. On giving up the farm at Sotby, the younger brother, Joseph, proceeded to London, where, after a time, he entered on the business of a printer, and whither John followed him in the course of a few years. The *Mercantile Journal* was amongst other papers then issued from the office in Norfolk Street, Strand, and the price list in this struck a home chord in the heart of Mr. Rogerson. He reflected how imperfectly the price of corn was given in the newspapers; how the corn article was written before the markets closed, and often consequently without any notice of an important turn that might take place towards the finish. He knew how the dealers and Trade endeavoured to make up for this deficiency by their own private letters and advices, and he so came to the conclusion that an acknowledged authority for the Mark-lane market was required. In a word, Mr. John Rogerson originated the *Mark Lane Express*. His brother Joseph heartily supported the proposition, and thus, under the editorship of the late Mr. William Shaw, the first number of that paper was published—with what ultimate success it is hardly necessary here to say.

Mr. Rogerson, however, did more than merely offer an idea for others to work out. He himself travelled England, Ireland, and Scotland for the best correspondents and agents, and materially contributed to the encouraging support under which the *Mark Lane Express* was founded. He was also greatly instrumental to the establishment of the Farmers' Insurance Office, of which he is still solicitor, having duly qualified and passed for that profession after some years' residence in London. He is as well identified with the other institutions of agriculture, and has long been a Governor of the Royal Agricultural Society, in the formation of which he took a deep interest. He is also a member of the London Farmers' Club, although his advanced age has not latterly permitted his attendance at any of these or similar gatherings. In fact, first impressions have had their full weight and influence over Mr. Rogerson's useful career. The son of a farmer, and himself thoroughly educated for the same path in life, all his great hopes and aspirations have still been centred in the cause. No matter whether the scene of his labours be town or country, he has still been thinking of what he might do for agriculture. His endeavours have not been without their reward. He can count upon many friends in all parts of the United Kingdom, made mainly in the prosecution of those "points" he has succeeded so well in developing. And in association with that of his brother, his name will long be known, to use a somewhat forensic phrase, by "the paper he holds in his hand."

THE GREAT MOGUL; A SHORTHORN BULL.

THE PROPERTY OF STEWART MARJORIBANKS, ESQ., OF BUSHEY GROVE, WATFORD, HERTS.

The Great Mogul, bred by Mr. Marjoribanks, and calved October 26th, 1856, was got by Grand Turk (12969), dam (Victoria 8th) by Sir John Sinclair (5165), g. d. (Victoria 4th) by Prince Albert (11933), gr. g. d. (Victoria 2nd) by Belzoni (783), gr. gr. g. d. (Victoria) by Satellite (1420), gr. gr. gr. g. d. (No. 1, Mason's) by Cato (119), gr. gr. gr. gr. g. d. (Pope Cow) by Pope (514), gr. gr. gr. gr. gr. g. d. by Favourite (252), gr. gr. gr. gr. gr. gr. g. d. by White Bull (421), gr. gr. gr. gr. gr. gr. gr. g. d. by Favourite (252), gr. gr. gr. gr. gr. gr. gr. gr. g. d. by Dalton Duke (188), gr. gr. gr. gr.

gr. gr. gr. gr. gr. g. d. by R. Alcock's Bull (19), gr. gr. gr. gr. gr. gr. gr. gr. gr. g. d. by Smith's Bull, gr. gr. gr. gr. gr. gr. gr. gr. gr. gr. g. d. by Jolly's Bull.

In 1857, at the Salisbury Meeting of the Royal Agricultural Society of England, Grand Turk took the first prize of 10 sovereigns as the best Short-horn bull-calf in the show, beating Mr. Booth's Lord of the Valley, and some other highly-bred young ones. In the month following, at the York Meeting of the Yorkshire Agricultural Society, he took the second prize of 5 sovereigns for bull calves, and Lord of the Valley the first.

In 1858, at the Chester Meeting of the Royal Agricultural Society, the Great Mogul took the second prize of 15 sovereigns, for short-horn bulls over a year old, and calved since July, 1856; Lord Hill claiming the first with Hetman. At the Northallerton, following Meeting of the Yorkshire Society, he took the first prize of 20 sovereigns as the best short-horn bull over a year old, Mr. Fawkes' Don Giovanni second, with a strong entry of highly commended.

The Great Mogul is a rich roan bull, remarkably handsome, symmetrical, and generally good in his points. Perhaps no animal was ever more fancied from the first, and they made quite sure of winning with her at Salisbury, when put up at the Bushey sale in the spring of '57, where he was bought in for four hundred guineas. He is now in full work there. The Great Mogul was not exhibited at the Warwick Meeting, because, as we are advised, " it would have been necessary to load him with flesh, and thereby impair his usefulness."

THE HERDS OF GREAT BRITAIN.

Chapter XI.

THE ATHELSTANEFORD HERD.

A railway ride of some forty miles over the Border brought us at last within eighteen of " Edinburgh toun," and just beneath the shadow of the Berwick Law, which rises in all its majesty as the watch-tower of the East Lothian. It was not, however, from that dark-brown " coign of 'vantage," that we cared to glean our first impressions of Athelstaneford. We liked better to see them play their own parts, one in the distance, and the other just nestling beneath us, as we took a mental sketch of the panorama, near the old convent vaults on Barney Mains. Mr. Douglas's homestead lies at the foot of a glen, down which the Cocktail Burn—whose waters are connected, in Scottish history, with a bloody day between Athelstane and the Picts—flows from the Garlton Hills. On the highest point of the latter stands the Hopetoun Monument, to tell of valour in a far more glorious field; and in modest contrast to it, is the obelisk, just rising from the centre of the village green, which the zeal of the present minister, Mr. Whitelaw, has reared to the memory of Blair, who, like the author of " Douglas," was one of his predecessors at the manse. On the right is Traprain Law, and running gradually out near Dunbar, the bold range of the Lammermoor Hills, which Mr. Pusey skirted on his second agricultural visit to East Lothian; while just above the deeply-wooded valley, so English-like in every feature, which opens from Athelstaneford, and stretches from Gilmerton House to New Baith, we catch the deep-blue sea-board of the German ocean. Far away, the Bass Rock, ever clangorous with sea-fowl, stands out blunt and bare from its wave-washed base; and beyond Berwick Law we mark the distant range of the Fife county, over which " Merry John" Walker was so great with his " dearies" for one-and-twenty seasons; and Gullane with all its memories of Despot, Inheritor, and Lanercost, who came so often, " fresh fra the Forth," to give English rivals a taste of their quality. Dirleton's Woods grow green and fair down to the very edge of the Frith; and as we glance back inland, into a fine open agricultural country, past the snug homesteads of Mr. Hope of Fenton Barns, Mr. Gray of Kingston, and countless others which dot the landscape with their red tile roofs and their steam engine chimneys, we may well feel that we have come to a land sacred to the genius of " Well-to-do-ism."

Mr. Douglas occupies a farm of three hundred acres at Athelstaneford, belonging to Sir David Kinloch; and also holds Muirhouses, of two hundred and fifty acres, under Earl of Wemyss, about a mile-and-a-half from it. The shorthorns are kept entirely at the former, where Mr. Douglas resides, and the store-cattle at the latter. The whole is principally dry-field land, with, in some places, a large admixture of clay; and, with the exception of six acres, there is no old grass. The system is the six-break one; about seventy to eighty acres are annually sown in turnips, and from eight to ten in mangels, of which Mr. Douglas prefers the orange-globe variety. His house at Athelstaneford is undergoing extensive additions; and the silver Dorkings, which include the prize pen at Haddington last autumn, have just been located in a stove-warmed galvanized-wire house, with a crafty trap at the top, for the East Lothian plague of sparrows. Numerous roses also seem his care, and we catch the first glimpse of their short-horn embodyment in Rose of Summer's head, which faces us as we enter the passage. The peculiarly long one of Lalla Rookh, which wore the rosette of victory at so many a Highland and Yorkshire Show, also kept watch and ward in another part of the lobby. There is no painting of this cow, which got jammed against a wall by a cart, and died after she had bred one bull-calf; but her head is not the only memorial of Rose of

Summer, who figures with Captain Balco (12546), the sire of her calves, Rose of Athelstane, and Sir James the Rose, in a very excellent painting by Gourlay Steel of Edinburgh. Village Belle, who won a sweepstakes of £2 each, as a yearling at the Royal Dublin Show, where she had ten competitors, is alike favoured; and Water Lily shares her canvas honours with the Clydesdale mare, who gained the Royal English prize at "Merrie Carlisle," and was busy that afternoon in a team with one of her daughters, preparing land for turnips. Upwards of a dozen gold and silver medals lay in array on the side-board, from which the three Challenge Cups of Ireland had but just departed. The Royal Dublin, which Venus de Medicis won last year, has passed over, without competition on Mr. Douglas's part, to Mr. Eastwood through Rosette. In the Purcell, he has already a two years' interest, through Rose of Athelstane and Queen of Trumps; and Lady of Athelstane, Maid of Athelstane, and Titania were his first winning trio of the Waterford.

Some fine specimens, to wit Provost (4846) from a daughter of Colonel Cradock's old Cherry, and Melrose by Gainford (2044) one of her sons, first attracted him at the Highland Society's Show at Edinburgh in 1842, and his improved shorthorn impressions date from that day. Still, it was not until 1846, when the Royal Society met at Newcastle, that he made any extensive purchases. Belleville (6778) was then all the rage, and it was with two yearling heifers by him, that he won the second and third prizes in their class at Aberdeen, the following summer. In that year, he also bought Florence of the Booth's Farewell tribe, and Lalla Rookh, at Mr. Carruthers' of Dormont's sale, the former of which he parted with to Mr. Bolden, senior. Before that, she had produced her only heifer-calf, Little Red Rose, who got the second prize as a yearling at Dublin in '49, and was sold, first to Sir Hervey Bruce, and by him to Mr. Archdale, of Enniskillen, from whose hands she found her way back to Athelstaneford, along with her two daughters Eugenie and Florentia. The early prize winnings of Mr. Douglas were not, however, confined to his females; as in 1848, when he first fairly established his name as a winner at the Highland Society, he not only got the second cow prize at the Royal Irish, but won with his Red Rover in the yearling bull class, beating the Honourable Mr. Nugent's celebrated Bamboo. Deception, the winner of the two-year-old bull prize at the English Royal at York that year, was a 100-guinea purchase of his, from Mr. Keevil, but he kept none of his stock; and his first bull of any importance was Trumpeter (10978), from Colonel Cradock's Grey Rose by Roland (2556), who was highly commended both at Windsor and Exeter.

Molecatcher (10537) who was bred by Sir Charles Tempest, and got by Mr. John Booth's Mowbray (7260) from his celebrated Mantalina, also did him some good; but when he determined on having a sale in 1852, he hired Mr. Maynard's famous prize bull Crusade (7938) by Cotherstone (6903), in order to have his cows all served by him. Among them was Rose of Autumn, which he bought at the sale of Mr. La Touche, in Ireland, into whose possession her dam Pelerine, and Polka, those celebrated Killerby twins by Buckingham (3239) from Mantalina had passed by private contract. Her first calf at Athelstaneford was Rose of Summer by Velvet Jacket (10998), which pleased Mr. Douglas so much, that he determined to reserve her along with her half-sister Lady Like by Stars and Stripes (12148), Scottish Blue Bell by Captain Shafto (6833), Marchioness by Bellevile, Purity by Crusade, and Second Queen of Trumps by Belleville, which he purchased from Mr. Unthank of Netherscales for 120 guineas, as the nucleus of a second herd. Up to the time of his sale, he had won fifty-nine premiums and eight commendations for cattle, and Rose of Summer and Scottish Blue Bell, who were on more than one occasion first and second to each other, "took up the running" right gaily, in the new era. The latter was eventually sold to Mr. Corwin of Ohio, for 200 gs., as a two-year-old heifer in-calf. Rose of Autumn and Village Belle were parted with at the sale, with leave to exhibit them at the Highland Society, the following week, where they won the prizes in their respective classes; and then this first of the future "Roses" of Athelstaneford, who was then nursing Rose of Summer, went with Brenda (in calf with Lord Raglan to Crusade) to their new owner, Mr. Stewart of Southwick. Lord Raglan was purchased back by Mr. Douglas, and got, among others, Beau Bill and Lord Stanley (now Mr. Cruickshank's); he was second in Lord Kinnaird's hands last year to Statesman at Aberdeen, and the produce of Rose of Summer, who broke to Crusade, and was served by Heir-at-Law (13005), came back to Athelstaneford in Rose of Sharon.

With that admiration for the Booth blood, which made him once bid Mr. Richard Booth 500 gs. in vain for Charity, and 550 gs. in later years for Nectarine Blossom, Mr. Douglas went to the Killerby sale in the autumn of '52, and bought Birthright, a grand-daughter of Bracelet, in calf to Hopewell (10332), as well as Officious, a calf by the same bull, and of the same tribe, which he dipped still deeper into by the purchase of Spicey and Ringlet. Warlaby also furnished him with Extasy from Isabella Exquisite, which was re-registered, with Mr. Booth's permission, as Isabella Hopewell. Along with Rose of Sharon, there came a 600-guinea lot, in the shape of Hawthorn Blossom, Heather Bell, and Cherry Queen, from Cherry Blossom, a daughter of Old Cherry, and Imperial Cherry (the dam of Lady Pigot's prize winner Cherry Empress) from Cherry Blossom's daughter Rose of Southwick. It was quite a case of

"Cherry ripe! cherry ripe; cheap I cry,
Full and fair ones—come and buy;"

and the yearnings which had sprung up in Mr. Douglas's mind, as he conned his two favourites in the yard at Edinburgh, fourteen years before, had at last their fulfilment. Three out of the four were by Col. Towneley's Hudibras (10339), an own brother to the famous Alice.

He made his greatest bull hit when he bought Mr. Ambler's Captain Balco (12546) by Balco (9918) from Cowslip by Upstart, and had not only Rose of

Summer's two calves by him, but the Third from the Second Queen of Trumps, which vied with Rose of Athelstane, in sweeping the three National prizes in one year, as Rose of Summer had done before them. Captain Balco, after winning several prizes as a yearling in 1854, was second at the Royal Dublin Show to Master Butterfly, beating, among others, Richard Cœur de Lion (13590), who was third, and Viscount Monck's Cadet (12521) by Crown Prince (10087), who had just beaten him as a yearling at Armagh. The Society of Shakers, who farm 1,000 acres of the finest land in Ohio, bought him for 400 guineas, among the twenty, which they purchased from Mr. Douglas in the course of two years, and his son Sir James the Rose (13290), whose very first calf was Maid of Athelstane from Ringlet, soon took his place, and has for three seasons past been the main prop of the herd. In the same year (1855) that Captain Balco went out, Mr. Douglas bought Hymen (13058) by the Duke of Cambridge (12742) from Bridecake, as a calf at the Springfield Hall sale; but he scarcely used him, as his senior did not leave England till nearly the end of the season, and after winning the County prize with him against bulls of all ages, he sold him for 200 guineas to M. de Trehonnais at the Paris International Show, the following year. This sale, which seemed a good one at the time, was a source of some regret, when the only two calves he left behind him came out in the show yard. The Lamp of Lothian from Isabella Hopewell, beat 132 yearling bulls at the Royal Dublin, besides getting the gold medal as the best bull in the yard, after which he was sold to Mr. Crosby, of Ardfelt Abbey, Tralee, for 250 gs.; and Lady of Athelstane, from Playful, is probably only at the outset of her winning career.

Playful by Fourth Duke of York (10167) introduced the pure Bates blood into the herd, and Cambridge Rose and Britannia by George (12938), a son of Lord George, are combinations of it with Booth's. The Hawthorn Blossom tribe also came from Warlaby, through Venus de Medicis by Harbinger (10297), who goes back to that celebrated dam of Nectarine Blossom, through Bloom. The latest or ninth tribe was added in the spring of this year, when Mr. Douglas determined, be the price what it might, to have four of the Princess tribe at Mr. Troutbeck of Blencowe's sale, and although he was punished pretty severely by Messrs. Saunders and Robinson, he did not cease working the mysterious "*go on*" telegraph to his commissioner, till Polly Gwynne and her daughters, Prim and Priscilla, along with her bull calf Omega, had all fallen to his nod. Such is the history of the rise and progress of this celebrated Scottish herd. Hitherto it has been quite self-maintaining, and in spite of the sale of from fifteen to twenty each year, it has been kept up to nearly fifty. In future, it is Mr. Douglas's intention to let bulls from his principal cows, and, as a general rule, only to sell his females, but still he is not likely to swerve from his fixed principle of putting a price on every thing.

The fold yard, where the herd is kept, is just across the Cocktail Burn, not more than fifty yards from the house; and two fine fox-hound puppies by Burton Contest, which are out at walk here for Earl of Wemyss, and lay stretched full length in the sun, were the first symptoms of its animal life. It consists of three lines of red-tiled buildings, with half-a-dozen boxes, which are generally devoted to the cracks, along the common front. Sir James the Rose's box is so completely embedded in the side of the hill, that although his tread is much more delicate, he involuntarily reminded us of a robber chieftain coming forth from his fastness among the flower-clad crags. There can hardly, we think, be two opinions as to his being one of the most bloody-looking and best handling bulls of the day. Still it is, with him, excessive sweetness rather than striking grandeur. There is the stylish and yet beautifully mild head, with its fine tapering muzzle and graceful horn; the well sprung rib, and the beautifully covered huggins, with the tail nicely set on; and were it not that he is slightly slack behind the shoulder, which shows more, now that he is not made up at all, he is pretty nearly perfect. In colour, he is a deep red, with a star on his forehead, and a little white beneath him. He has only been shown twice, first as a bull calf at Rotherham, where he was highly commended, when his companion, Hiawatha, won; and as a two-year-old at the Highland Society's Show, where he got the first prize. His son, Prince Imperial, from Imperial Cherry, came out next. He is a very clever mellow calf, of August 3rd, with a deep bosom and gay fore-hand. In his general outline he resembles Master Butterfly, and the only take off to his head, is a slight uprightness in the horn. He has lately been purchased for a considerable sum by Mr. Wells, a son-in-law of Earl of Wemyss, whose pastures at Redleaf, Kent, had already received sundry other high priced Athelstaneford emigrants, in the shape of Bride of Lammermoor from Ringlet, Little Fanny a grand-daughter of Mantalina; Rose of the Valley from Rose of Sharon, and Princess Matilda by Sir James the Rose. Cedar of Lebanon, a rich roan bull-calf by Talpa, by Gainford IVth., dam by Booth's Benedict (7828), is not so fashionable as Prince Imperial, but likely to make a fair show bull. In his head he reminds us not a little of Baron Hopewell, and his forehand is quite his best part. There was only one more bull-calf, and that a promising one, Sir Rodolph from Lady Helen by Harbinger (10297), in this quarter; and then, with a passing peep into the condition chests, where the ammunition is duly weighed out on a sliding scale, the Eleusinian mysteries of which it is not for us to penetrate, we strolled away to the floor-boarded box, from which the Third Queen of Trumps swept forth so often to victory.

We found it occupied by Omega, by the Duke of Cambridge (12747) from Polly Gwynne, and Sir Hubert by Sir James the Rose from Bona Fortuna. Omega is a fine rich coloured calf, with rare crops, and stronger and thicker fleshed than its companion, but it lacks the elegance and style of the young knight, who will doubtless be a Royal standard bearer in his day. Lady of Athelstane and Maid of Athelstane then stepped forth, from the two next boxes, and up the road together. The Lady was never shown as a calf, but opened her campaign as a yearling, by being highly commended at Northallerton; and then swept the first prizes at the Northumberland, Glasgow, Aberdeen, and Londonderry shows. Her quality and fashion are remarkable; and although she is smaller, there is a good deal of the Queen of the May about her. In fact, her open waxy horn and sketchy head, with her wide deep bosom and graceful way of carrying herself, give her an air and character we have seldom seen reached. Maid of Athelstane does not come up to her in these latter points, but as regards thick flesh, evenly laid on throughout, she is by no means her inferior. Sir James has not given her his head, but his closely packed quarter is there, in its entirety. Her first public effort was in a calf class of eighteen, with Queen of the Vale, Faith, Stanley Rose, &c., at Northallerton, and then came her share in the Waterford Challenge Cup. Lady Olivia, a clever sweet-headed half sister to her, is the only representative of Little Red Rose, who was slaughtered last year; and when we had thus exhausted the tenants of "The Row," their seniors, Ringlet and Rose of Sharon, were accommodated with the halters. Ringlet is by Frederick (11489), from Pearly (for whom Mr. Douglas's 100 guinea bid was the last, save Mr. Eastwood's at the Killerby sale), and was purchased from Colonel Towneley at two-and-a-half, for 500 gs. Her first calf, Pearlette, was one of the memorable 1,000 guineas sale of three by the Colonel to the Americans, which once more brought up the price quotations on the great Shorthorn 'Change. Then followed Bride of Lammermoor (the first she had in her present owner's possession), who brought back 300 guineas of her dam's price, and Maid of Athelstane and Queen of Athelstane in succession. As a calf, Ringlet herself won at the North Lancashire and Yorkshire Shows, and was second to Victoria at Rotherham, two years afterwards. Under the Athelstaneford colours, she had to be content with a second to Rose of Athelstane, in the cow class at Glasgow, but she was first last year at Aberdeen. She is a very fine specimen of a high bred animal, and, considering her regular breeding, has kept her shape right well. There is very great length and fine arching of the ribs; but while she is very wide and thick in the back and loins, she is perhaps a trifle light in the twist, and the slight droop of her quarters and a little redundancy there take somewhat from her general appearance. Her head is very neat, and she carries it unusually low as she creeps along in her peculiar style. It is somewhat remarkable that Mr. Douglas should have purchased her, simply because he had lost the female descent from Bracelet through Birthright, who persisted in breeding nothing but bulls; and that she, as if to reward him, should breed nothing but heifers. Rose of Sharon has more of the old fashion about her, than her tribe usually possess. She seems just to lack their high-bred characteristic head, though there is but little fault to be found with the substitute, which is combined with great and rich substance throughout, and a beautiful bosom.

Like the senior pairs, Lady Blanche and Almack's Belle were also great contrasts. The latter has more style, but not the size and thickness of her milk-white companion (the only one of that colour Sir James the Rose ever got), who bids fair to be a slasher some day.

We moved an adjournment to Spicey's box immediately after, and found her a nicely-got-up cow, on rather a small scale. She went from Killerby to Ireland, and bred two prize bulls, but Mr. Douglas's love of the Bracelet tribe induced him to seek her out; and Beau Bill, the first of her two Athelstaneford calves, was second at Aberdeen. Two smart red Ayrshire heifers, from nurse cows, made a little change before we came to Isabella Hopewell, a cow with all the fine loin and thick flesh for which Warlaby is so renowned. She has bred six bulls consecutively, but at last she has a heifer-calf by her side, in the shape of a very thick and bonnie Isabella Rose, with the mossiest of coats and the sweetest of heads. Eaglet by Booth's War Eagle (15483), from Cambridge Rose, has not so much class about it, but useful and even withal. Venus de Medicis and Rose of Athelstane were out grazing together by the side of the burn. The white, who was once placed before Third Queen of Trumps, in their five jousts, was purchased for 300 gs. from Mr. J. B. Booth, after her first defeat at the Northumberland Meeting. She is by Harbinger from Venus Victrix, and undoubtedly one of the very best that has been bred at Killerby since the Bracelet days; and the only one in the herd which has not had a living calf. She has been in calf once, when she slipped to Sir James the Rose. Her fore-quarter and perfect bosom are what first catch the eye; but as you look along her, you find that the whole is quite in keeping, both in point of flesh and compactness; and the thickness of the loins is in fact quite out of the common. Rose of Athelstane, who has travelled upwards of five thousand miles to shows by land and sea, and won about twenty premiums, has retired from public life. She began unfortunately at Paris in 1856, where she was disqualified with her dam Rose of Summer, as being too fat to breed; and she then fell with the epidemic, which originated in the show-yard. Her dam could only get a mile from the Drem station, and died in a shed near Muirhouses, and she herself just crawled on the other mile-and-a-half to Athelstaneford, and lay more dead than alive for two months. At last she took heart of grace, and was second to Queen of the May at Rotherham, on whom in the next year she turned the tables at Salisbury, though Nectarine Blossom beat her at Chester. Her rumps are now rather redundant, and her hocks might be a little better, but her handling and make are wonderfully good, while that small neatly chiselled head, with the horns lying so gracefully back from the top-knot, will go up in the new entrance hall at Athelstaneford to a certainty.

A box in the inner yard held Queen of Athelstane and Lily of the Valley, two calves very different in their style, and exactly carrying out the peculiar characteristics of their dams, Ringlet and Rose of Sharon. The former, who promises to be lengthier than the Maid Athelstane, has the most blood and style; but the latter is the thicker of the two, and her deep straight twist, and legs well under her, a point which she catches in its integrity from the bull, make her, perhaps, our favourite among the heifer calves. Ringlet did not nurse her own calf very well, and it is now under the charge of the old Irish cow, who brought up Rose of Athelstane and Sir James the Rose. Prim Gwynne was a great contrast to those little female medallists. She is a very light roan, by a son of Benedict, square and thick, and with good quality. Her "Auld Crummy" head is her most underbred point, and she wants a cross with Sir James the Rose, to give freedom to the narrow forehead and grace to the horn. Imperial Cherry, the dam of Prince Imperial, and also of Imperial Rome, who was sold last year at two months old for 150 gs. to Mr. Longmore, of Rettie, Aberdeenshire, had just lost her roan heifer calf, by a sun stroke. The cow herself is a well-framed one, with a very prominent bosom, and, like all the Cherry tribe, carrying much thick flesh, but, perhaps, a little scooped out behind. Bona Fortuna was quite down on her luck, after two blisters for inflammation of the wind-pipe. Sir David, the elder brother of her Sir Hubert, went across the seas as a little page of honour to Third Queen of Trumps, and shared her fortunes to the death, as they were flung over together in a storm, with six blood and Clydesdale horses and brood-mares, some seventy miles from New Orleans, and the sharks must have feasted in verity that night.

There were no more of the herd at home, so we drove off to the Church field, where we found a few, along with five or six East Lothian cows, who had come at a five-guinea fee to Sir James the Rose, and a fine two-year-old filly from the prize mare. Lily, the dam of Lady Blanche, was among the first lot, in the shape of a massive cow with great substance, and on short legs. There, too, roamed Priscilla Gwynne, who has less of the family countenance, and greater length of frame and finer crops than Prim, but perhaps she is a little on the leg. Ruby, bred by Mr. Maynard of Harlsey, and going back to Booth's blood, was feeding alongside her, with her heifer calf. For the remainder, we had to travel up to the Muirhouses. There we espied Cambridge Rose; not of the famous tribe of that name, but a purchase at the Nafferton sale; Lady Helen, a very snug cow and deep milker, bred by Mr. W. Smith of West Rasen, and in direct descent from Mason's renowned Portia by Cato; Lady Flora by May Duke (13329), small but quite a lady of quality; and Polly Gwynne, a level red cow, good looking for a lean one, and with an airy style of forehand, which savours more of Kirkleavington than Blencowe. Cherry Queen, for whom Mr. Douglas refused 200 gs., we seem to have quite forgotten, as we were naturally more anxious to see Playful, a true-made cow with fine bone, who was bred by Mr. Bell, a nephew of Mr. Bates, almost within a stone-throw of his uncle's. She was never shown, but none have been more successful in breeding. For her Lady of Athelstane, 365 guineas was refused from Mr. Welsh of Trough House, Limerick; and her other three, Jenny, Alma, and Hiawatha (14705), brought 600 gs. to the Athelstaneford exchequer. Jenny got the Purcell Challenge Cup for Mr. Rowland Campion, of Old Town, Shanballymore, two years in succession, and was only thwarted in winning it out, by Rose of Athelstane. Alma was the third prize yearling heifer at the International Paris Show; and Hiawatha, after defeating Col. Towneley's Fred and Sparrow Hawk in a large class at Rotherham, won the best prize as a yearling at the Highland Society, when he had passed for 200 gs., into the hands of Mr. Stirling, of Keir. The above were by Captain Balco, and Lord George (10439). After losing her this year's heifer-calf by him, from inflammation, Playful is now in calf a second time to Sir James the Rose.

And so we quitted that red knight's dominions, and all his "ladyes fayre;" and as we sped home again down the other side of the island, we thought, and with justice, that Scotland's Horn and Hoof interests were in right good keeping, when one herd of only twelve years' standing could hold its own so bravely, against the shrewdest and oldest breeders in the United Kingdom.

H. H. D.

FISH MANURE.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The use of fish as a fertilizer has long been common to very distant countries. And this employment of the refuse matters of the sea fisheries has, in our time, been much stimulated by the introduction of guano.

It was indeed almost certain, when guano became so extensively employed as a manure, to be next considered whether artificial guanos might not be prepared, and at a price lower than that of Peru. The reflection that guano is the product of myriads of fish-fed birds has naturally led to sundry attempts to employ refuse fish in the preparation of a similar manure, since it appears reasonable to conclude that what the little fisher-birds of the Chincha Islands produce so abundantly might be successfully imitated on other coasts. Certain manufactories of fish-manure were therefore established, and specimens of the manure they produce have, within the last few months, been reported upon by Professor Anderson (*Trans. High. Soc.*, 1859, *p*: 73), and we may very usefully to ourselves study the results of his chemical examinations.

The use of refuse fish-manure is common enough near to certain great fishery stations—for instance, in Newfoundland, the portions of the cod fish rejected by the curers (and these, it seems, are equal to 280 tons of refuse out of every 400 tons of codfish) are extensively employed as a manure.

It was in a report to the Secretary of State for the Colonies, that Mr. K. Hamilton, the Governor of Newfoundland, had, some little time since, occasion to remark (*Jour. Roy. Ag. Soc., vol.* xiv., *p.* 393), that "in this island the manure universally applied to the soil is fish, consisting of the superabundant herrings and caplins in the process of decomposition, and generally without any earthy admixture, and the heads, bones, and entrails of codfish, after having been decomposed and formed into a compost with clay or peat-bog earth. This manure, adds the Governor, has, on trial and comparison, been found to be much more fertilizing than guano, and when applied to the thin, gravelly, and unpromising soils near St. John's, yields crops of grass and potatoes which cannot be surpassed elsewhere. It is found to be no less powerful when applied to oats; but these, owing to the shortness of the season, and the consequent uncertainty of ripening, are but partially cultivated in Newfoundland."

Attempts had been made, even when this report was made in 1853, to collect, dry, and to render portable these fish remains; and the following analysis, by M. Gautier, of the dried product, is appended to the Governor's report:—

Moisture	1.00
Organic matter (containing 12 per cent. of nitrogen)	80.00
Common salt, carbonate of ammonia, &c.	4.50
Phosphates of lime and magnesia	14.10
Carbonate of lime	0.06
Silica	0.02
Magnesia and loss	0.32

The general process employed in the preparation of this pulverized fish-manure, adds M. Gautier, is stove drying and grinding.

This is naturally attended with some difficulty: the process is not very agreeable; and the proportion of water in the fish to be evaporated very large. Even in the dried codfish, as imported into this country, as Mr. J. B. Lawes has shown (*ibid, p.* 498), there is only 59.26 per cent. of dry matter. He found in the fresh substance:—

Ash	18.66 per cent.
Total dry matter	59.26 ,,
This last contained:—	
Nitrogen	6.60 ,,
Fatty matter	0.90 ,,

If we examine the sprats which are used so extensively in some parts of England as a manure, we obtain similar results—we find a powerful manure yet containing a large proportion of water. This analysis was some time since made by Professor Way (*ibid, vol.* x., *p.* 610); and in the fresh sprats which he examined, he found—

Water	64.60 per cent.
Oil	19.50 ,,
Dry nitrogenous matter	15.90 ,,
Yielding nitrogen	11.53 ,,

Sprats, in their natural state, then, contain—

Nitrogen	1.94 per cent.
Ash	2.12 ,,

The ash of these sprats yield per cent.—

Phosphoric acid	43.53
Lime	23.57
Magnesia	3.01
Per-oxide of iron	.28
Potash	17.23
Soda	1.19
Common salt	11.19

As a matter of practical importance the Professor drew the farmer's attention to the similarity in composition between some of our cultivated crops and that of sprats. Wheat, for instance, contains 2 per cent. of nitrogen; so does this fish. 100lbs. of wheat require about 1¾lbs. of ash, of which about one-half is phosphoric acid, and one-third potash; 100lbs. of sprats contain 2lbs. of ash, of which two-fifths are phosphoric acid, and one-fifth potash.

After these valuable examinations, and with such inducements held out, need we feel surprised that several attempts were made in various fish-refuse-supplying districts to prepare a portable fish-manure? Or should we feel astonished, when we find by whom some of these efforts were directed, at their utter failure? Could better things be hoped for, when ignorance and rascality too often conducted the manufacture? Yet, as Professor Anderson has recently remarked (*Trans. High. Soc.*, 1859, *p.* 74), the failure of these processes should not lead to the conclusion that it is impossible to convert fish into a dry manure, but should rather direct attention to the contrivance of better processes. "The truth is," continues the Professor, "there has been a great deal of misunderstanding as to what is required to make such substances portable. The makers of manures are rarely familiar with the principles of the art they practise; and being strongly impressed with the importance of rendering manures soluble, have most commonly made treatment with sulphuric acid, in some way or other, a fundamental part of their process; whereas, in this case at least, all that is requisite is to remove the water of the fish, and to reduce the dry residue to a pulverulent state."

To effect this object no complicated apparatus is necessary; all that is required being a stove, or flat drying surface, with flues passing backwards and forwards, or, what is preferable, by means of steam. A thin layer of moist fish, or offal, being laid upon this, might be rapidly dried and converted into a proper state before putrefaction commenced, and a manure be produced which would have comparatively little smell. As regards its value there is some difficulty in forming an opinion; but some guide may be afforded by reference to the composition of such manures of this kind as have appeared in the market, analyses of several of which have been made. The first analysis given by Professor Anderson are of two specimens made in the east of England; these were found to contain—

	I.	II.
Water .	9.77	12.15
Organic matter .	53.55	55.27
Phosphates .	4.72	6.44
Sulphate of lime .	1.63	1.71
Common salt .	26.49	22.29
Sand .	3.84	2.14
	100.	100.
Ammonia .	6.20	7.63

These the Professor values—No. 1 at about £4 12s., and No. 2 £5 10s. per ton.

Another specimen of prepared fish-manure, which the Professor believes to have been offered for sale in Liverpool, contained—

Water	7.55
Organic matter . . .	87.45
Phosphates . . .	0.55
Carbonate of lime . .	0.45
Alkaline salts . . .	2.55
Sand	1.45
	100.
Ammonia	7.29

The value about £3 16s. per ton.

The last analysis, given by Dr. Anderson, was of a specimen of fish-manure manufactured on the coast of Portugal, whence it was imported into this country. It is of a totally different nature from the others, sulphuric acid having obviously been used to some extent in the process, and sulphate of lime apparently added as a drier. For this reason its value must be estimated on the same principle as that of superphosphate, which indeed it somewhat resembles in composition. The Portuguese specimen contained—

Water	14.04
Organic matter	27.77
Biphosphate of lime, (equivalent to 7 per cent. of bone earth made soluble) . . .	4.48
Insoluble phosphates . . .	1.60
Sulphate of lime . . .	36.17
Alkaline salts	6.14
Sand	9.80
	100.
Ammonia	2.10

The value of this specimen is about £3 16s. per ton.

"But," concludes the Professor, "fish-manures have usually been offered for sale at from £8 to £9 per ton; and at that price there is obviously no inducement to buy them."

These facts will be useful to both the preparers and purchasers of fish-manure. It is a question, like all those relating purely to animal fertilizers, or such as are produced by animals feeding entirely on animal substances, of the highest interest to the agriculturist.

In a subsequent page to that from which I have already quoted, Dr. Anderson gives the analysis of a manure from an animal feeding on animal food—that of the insect-feeding bats, which abound in the caves of some of the West India Islands. This manure is in the form of an exceedingly light and bulky brown powder, consisting, in part, of small crystalline scales, and almost devoid of smell. It was found to contain:—

Water . . .	13.66
Organic matter and ammoniacal salts . .	64.12
Phosphates . . .	15.12
Carbonate of lime . .	6.28
Sand . . .	1.40
	100.58
Ammonia . . .	9.55

This is worth about £7 per ton, and, from its value, will probably soon attract the attention of the West Indian landowners.

There is, indeed, every reason to believe that much more might be done in the collection of the dung of animals fed upon animal food. For instance, in those great Parisian poultry yards, where the hens (in order to induce a continuous laying of eggs) are fed with the carrion, refuse fish, &c., of Paris, the dung of the tens of thousands of birds there kept must not only be large in quantity, but rich in nitrogenous matters. Vauquelin long since examined the egg-shells and excreta of a hen during the ten days she was fed upon oats. He found in these, in grains:—

	In 4 egg-shells.	In excreta.
Carbonate of lime .	453	58
Phosphate of lime .	98	175
Silica		185

M. Girardin has shown that the dried dung of poultry contains 59.8 per cent. of organic matter, and 40.2 per cent. of ash, or mineral substances; but neither of these chemists directed their attention to the amount of nitrogen it contained.

Researches like these are of importance to agriculture in more ways than one. They not only seem to tend to the supply of an increased amount of a powerfully home-made manure, but they may lead perhaps to another useful enquiry, as to the system on which the great French poultry-yards are conducted, and whether similar yards might not be profitably established in this country. It is certain that the poultry and eggs of our gallant continental neighbours are not produced, as ours commonly are, in farm-yards. The French poultry are kept chiefly in enclosed places, and fed upon food purchased expressly for their use. Yet still they are successfully kept in such large quantities as seem marvellous to us, who are wont to regard poultry as anything but profitable live stock, and, frequently, as objects of suspicion to the farmer. Then, again, with regard to fish-refuse, another evenly nationally important question arises, since anything that conduces to the profit of the fisheries promotes the prosperity of the sailors of England, and increases the proportion of the community who seek their livelihood on the great waters. If we merely regard it in an agricultural point of view, the fisheries are even now of no small importance, since, by them, and almost by the fisherman only, is restored to the land a portion of those enormous amounts of organic and mineral substances, which through every stream and every river are so steadily carried from the land to the sea; for in all these waters are found animal, vegetable, and mineral substances in some proportion or other. Now, it is only the fisherman who brings anything back from the deep waters on to the land; and these fishermen are still working out the same great object wherever we find them, either amid the ice of North American seas, or around the cloudless and rainless islands of the Pacific.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT WARWICK.

REPORT ON THE LIVE STOCK.

SHORTHORNS.

It is now eighty-two years since the birth of Hubback, the great progenitor of "the Improved Shorthorns." From him descended Favourite (sire of the Durham Ox), Comet, and other bulls, the gr. gr. gr. gr. gr. gr. gr. grandsires of this favourite class of cattle, which we venture to assert has gone on to improve in many respects from that day to this; not that we can point to individual specimens of the breed as exceeding those of eighty years since, but we point to the general improvement of the breed of shorthorns, as manifested throughout the country. Nevertheless, we might refer to those specimens of almost unexampled merit which the Royal Agricultural Society has brought before the public. Take the Oxford prize bull, the Duke of Northumberland, bred by Mr. T. Bates, and the other animals shown there by Mr. Bates, and follow up the Society's annual shows. Who will not remember splendid specimens of bulls, cows, and heifers? the names of their breeders being known to all, and particularly familiar to all shorthorn breeders—we mean such deserving most honourable mention, as Topham, Jaques, Forrest, John Booth, Rd. Booth, his Grace of Devonshire, Banks Stanhope, Viscount Hill, Parkinson, Wm. Smith, Marquis of Exeter, Ambler, Towneley, Lord Berners, Stratton, Henry Smith, Fletcher, Fawkes, Grenfell, Earl Ducie, Marjoribanks, Maynard, Kirkham, Tanqueray, Earl Spencer, Sir C. Knightley, Sir C. Tempest, and very many others, noblemen and gentlemen, who have done much to improve and establish the breed; and we have now such men as Sanday, Torr, Douglas, Hall, Jonas Webb, Crisp, Sterling, Gunter, Wetherell, Lord Feversham, Colonel Pennant, with many of the above, still arduously engaged in upholding and improving the breed—names which we mention just as they occur to us in writing: while our present catalogue gives us other aspirants' names, all bent upon achieving fame in the breed and improvement of shorthorns. Here we have in rotation the names of Grundy, Forrest, Price, Bradburne, Middleton, Slye, Watson, Horwood, Miss E. Barroby, Mrs. Farmer, Lane, Noakes, Tod, Lord Willoughby de Broke, Almond, Bland, Wm. Farmer, Sturgeon, Clinch, Viscount Dillon, Ivens, Wodehouse, Armstrong, Cartwright, Rich, Blathwayte, Lowndes, Robinson, Lynn, Hewer, Woodward, Huckvale, Lord Londesborough, Sturgeon, Popham, Noel Hill, Wells, Endall, Holland, Harrison, Weightman, Eastwood, Heaward, Duncombe, Fowler, Bowly, the College at Cirencester, Cox, Earl of Radnor—names which for the most part would not have been brought before us except under the high auspices of the Royal Agricultural Society; and nearly all of whom whom have won bright laurels for themselves, if not altogether successful in carrying off the few coveted prizes, for certainly the show of shorthorns, taken collectively, is the best we ever saw. Individual specimens we have frequently seen equal, if not superior, to individuals here, but never such large and such well-filled classes. We might fill columns with critical remarks upon their various excellencies, and then far fail of their due. We trust our readers will therefore excuse the feeble report we have to offer upon these superb classes; it is impossible to do them ample justice.

We subjoin a table, by which it will be seen that their numbers were far in excess of other years—even the formal Windsor meeting.

TABLE OF CATTLE CLASSES.

PLACE OF MEETING.		Shorthorns.	Herefords.	Devons.	Other Breeds.	Extra Stock.	Total.
Northampton,	1847	92	35	28	10	9	174
York,	1848	105	30	30	8	13	186
Norwich,	1849	95	28	48	35	4	210
Exeter,	1850	68	25	124	16	5	236
Windsor,	1851	176	41	74	94	—	385
Lewes,	1852	64	29	38	92	—	223
Gloucester,	1853	75	43	55	20	—	193
Lincoln,	1854	111	29	41	17	—	198
Carlisle,	1855	98	32	23	—	—	153
Chelmsford,	1856	78	40	55	25	19†	217
Salisbury,	1857	109	57	69	23	—	258
Chester,	1858	126	69	37	22	54‡	308
Warwick,	*1859	231	94	68	45	—	438

* Including Special Prize list. † Foreign. ‡ Dairy and Welsh.

Here we have, then, in the cattle classes alone 438 animals to look over and criticise, besides horses, sheep, and pigs. We purposed, as usual, taking a somewhat consecutive view of the different classes; but this we very soon found to be impossible, and we were, from sheer necessity, compelled to look them over just as any other casual visitor is obliged to do.

We will now proceed, as best we may, to give our report of the shorthorn classes. Take

CLASS I.—BULLS calved on or before the 1st of July, 1857, and not exceeding six years old,

No. 10, Mr. John H. Bradburne's roan bull Radford, the winner of the first prize. He is, as a whole, a well-proportioned animal of great merit, but he reminds us more of the portly alderman than the well filled-out gentleman. There is something common about him—no true nobility of character. Eyes small, head fair; muzzle, face, horns, and general looks good and quiet; short, thick neck, breast-end good; full shoulder; chine rather defective, and sets badly to shoulder; ribs not sufficiently springing near his chine, causing his sides to be too flat; girth not very great; capital loin, and back very level; good flank; rump not long; hips and first rib too far apart; twist, tuts, and thighs good. We have seen much better first-prize bulls; but this is a highly creditable one, and does Mr. Lythall honour as a breeder. This bull took the first prize at Chester, as the best bull for "dairy purposes." He is a rather short, thick, compact bull, standing too low, but well qualified, from his sappy qualities, to aid in "dairy purposes." The Hon. Col. Pennant, M.P., takes the second prize with No. 15, our old acquaintance Marmaduke, certainly a more noble-looking animal. But he has laid on his flesh unevenly, "patchy"; colour very fine; fat breast-end, full and good; shoulders full, but rather coarse; very pleasant looks; stands a majestic height, and of good length; his thighs and twist are thin, comparatively. No. 28, the property of Mr. Gooch, takes the third prize. He possesses some remarkably good points, and has altogether a superior contour; and his back is very level and good. No. 3, Viscount Hill's bull, pleased us much. He took the first prize, as a yearling, at Chester. He has a good proportionate frame, of good length, and admirably filled out; perhaps a little too "patchy." He received a high commendation most deservedly. No. 20, Mr. J. T. Noakes' Prince Alfred the 2nd, also receives a high commendation, with a very good animal. Lord Feversham's Prince Imperial, Miss E. Barroby's Marc Antony, Mr. Tod's Young Heir-at-Law, Sir C. Tempest's Emperor Napoleon, and Mr. Jonas Webb's Sir Charles, all received commendations. The latter we more particularly noticed, as he struck us as possessing a superb hind-quarter. His back, loin, first rib, rump, and tuts are admirable; his thighs deep, and flank capital; breast full, and girth good, but his fore-chine and hand are defective; colour, eyes, and general appearance very fine. No. 26, Colonel Towneley's bull, caught our eye on passing. He has a beautiful mild eye, and long good rump. This was a large, good class, and the judges deserve great credit for their discrimination.

CLASS II.—BULLS calved since 1st July, 1857, and more than one year old.

In this class No. 54, Colonel Towneley's Royal Butterfly, takes first prize, and without dispute: indeed, we do not hesitate to assert that he stands at the head of the classes of bulls for this year, and we might say for many a year. We have a full recollection of his brother Master Butterfly, whom in many points he resembles, but we think in substance and constitutional frame he excells him. Master Butterfly was always of somewhat delicate form, more slender than robust. Royal Butterfly has more good points, and more of profitable character about him, at the same time fully retaining the excellent qualities of his far-famed brother. We shall fail to describe him, but we will try. He has a fine muzzle, beautiful eyes, kind waxy horns, and mild placid countenance; he stands nobly, and is of majestic appearance, and of truly symmetrical frame, his chest is broad and full, neck good, and nicely framed to his shoulders, which are full and good; his depth through his chest and girth is great, but in this point he reminds one of Master Butterfly in the peculiarity of form, his lengthened plaits detracting a little from the true girth; his ribs are nicely springing, good front rib, and exceedingly good loins, and his depth from hip to flank great, and both good; rump nice length and full, thighs good, tuts all right, but his twist rather scant; altogether he has a very compact cylindrical frame, of sufficient length, and his colour is a beautiful roan. He is nearly a perfect specimen of a shorthorn bull, and we congratulate his owner in resisting the tempting offer of *twelve hundred guineas* for him. No. 43, Mr. Ambler's Prince Talleyrand, is a beautiful specimen of a true shorthorn: his general form, his admirable straight, level, broad back, and uniform proportions are worthy of all praise. We regret we cannot stay to give a longer outline of so good an animal. He takes second prize. No. 51, Mr. Lynn's Great Comet, takes third prize. He possesses a remarkably level back, good thighs and thin flank, hips rather narrow, and rather common general contour.

CLASS III.—BULL CALVES above six and under twelve months old.

No. 70, Mr. Fletcher's Prince of Warwick, takes first prize; Mr. R. Stratton's No. 62, Magician, the second prize. We have not much to remark particularly, but we must observe that seldom has a better class been exhibited. We had before us thirty-two young bulls, all of great merit: to single out individual specimens would almost be invidious, but as independent reporters we could say, that besides the two named, we were much pleased with No. 89, Mr. Booth's Knight of Windsor; No. 90, Colonel Towneley's Precursor; No. 91, Colonel Towneley's Bow Bearer; No. 76, Mr. Ambler's Royal Oak; No. 77, Mr. Ambler's Prince Alfred; No. 73, Mr. Wells's Prince Imperial; and No. 63, Mr. Stratton's Mars.

CLASS IV.—COWS in milk or in calf.

This was again an exceedingly good class, quite equal to any former years as a whole, but not individual specimens. It is impossible to do ample justice to such a class by any remarks we may make: we have already trespassed too much upon our space and our reader's patience in our remarks upon the class of bulls, and must now try a different course. Mr. Stratton takes the first prize with No. 94, Matchless the 4th; her only slight defects are in her neck and flanks: in most respects she is really matchless. No. 112, Mr. Eastwood's Rosette, takes second prize: she is proportionate, with very massive hips, and capital breast, rump not good, and tuts short. Mr. Todd's No. 109, Volga, takes third prize: she is of great depth and uniform frame, with heavy tuts and wide hips, and large rumps. No. 98, Mr. Douglas's Rose of Sharon, has extra plaits and heavy tuts; his No. 99, Ringlet, has a beautiful top. No. 101, Mr. Langston's Meretrix, has also a very beautiful top. No. 102, Colonel Pennant's Moss Rose, is quite a first-class cow, as is also No. 100, Mr. Hutt's Favourite. No. 106, Mr. Armstrong's Virginia, well deserves honourable mention, as does also No. 116, Mr. Jonas Webb's Lady Jane. Nos. 110 and 111, Mr. Booth's Chastity and Sister to Windsor ought not to be missed, but we must stop.

CLASS V.—HEIFERS in calf or in milk, not exceeding three years old.

Another exceedingly good class; Colonel Towneley is again the winner of the first prize, with his very beautiful heifer Fidelity. She is quite in character with the best of the Colonel's breed; his No. 131 third prize heifer Pearl, and his No. 132 Emma, are both nearly her equals. We have seldom seen three such beautiful heifers belonging to one breeder so true to character; perhaps we may be pardoned for just hinting that a little improvement in chine, neck, and neck-vein would render them all but perfect. No. 123, Mr. Fowler's Daisy takes second prize. She possesses a very level frame, nice breast end, even sides, and deep, horns rather awkward. Nos. 124 and 125, Captain Gunter's Moss Rose and Fair Maid of Wetherby, are two superb heifers. No. 127, Mr. Booth's Queen of the Isles, is a capital full-formed heifer, on short legs. No. 133, Sir C. Tempest's Surplice, is a beautiful animal. No. 122, Mr. Douglas's Lady of Athelstane, is exceeding good, as is also No. 128, Mr. Bowly's Songstress; but we must not enumerate all, much as they deserve it.

CLASS VI.—YEARLING HEIFERS.

This is a very attractive and beautiful class; we can only enumerate: Mr. Grundy takes first prize with No. 139, Faith, and a high commendation with No. 138, Victoria Regina; Mr. Douglas takes second prize with Maid of Athelstane: Captain Gunter takes third prize with Duchess 77; Mr. Stratton's Matchless 6th, and Mr. Hill's Orange Preserver, Colonel Towneley's Precious Stone, and Mr. Jonas Webb's Duchess de Maille take high commendation, and Mr. Stratton again takes a commendation with Bee. We have here 29 most beautiful and symmetrical heifers, each of which is worthy of commendation. We have been thus particular over our favourite shorthorn classes, and must now hasten on, once more repeating that we have never before seen such a splendid collection of shorthorns; even the classes for special prizes, including the pairs of cows which we have not yet alluded to, is worthy of a special report. Mr. Ambler's bull Grand Turk is found here, as are also his two heifers, which he sold for 250 guineas, for Australia — as a pair not excelled in the yard. Mr. Langston's cows are a pair of truly good and large-framed shorthorns, as are also Colonel Pennant's pair and Mr. Lythall's pair. It is a first-rate class. The pairs of heifers is a very superior class: in it are found two pretty little Bretonne heifers. The yearling heifer class is equally good. Although these classes are open to all breeds, every prize and every commendation are appropriated by the shorthorns. This was a most attractive department of the show, and we trust will be kept up.

HEREFORDS.

We have said that it is 82 years since the birth of the great progenitor of the Improved Shorthorns. Where we are to look, or how far we are to go back for any grand progenitors of the Herefords, no one knows. That they have been progressively improved like their rivals the Shorthorns, is unquestionable. It is said they were as a breed introduced from Flanders about 200 years since: if so, they claim, we think, precedence of their rivals. If they are not as a breed quite so large in frame and quick of growth, they excel them in breadth of chine, fulness of chest, and rotundity of shape, and probably in the quality of flesh. Many also attain a large size, but it is not general. The breeders of this class of animals deservegreater credit than the Shorthorn breeder, because they have to secure uniformity of colour (*i. e.*, red with white backs and faces), as well as the correct proportions of the animal. We should have liked to enumerate many conspicuous names of breeders who have won high honours, but space for this time forbids; nor can we attempt any descriptive account of individual specimens, they are so numerous, amounting to 94 animals of extraordinary merit, all of which are well worthy some favourable notice. Mr. Naylor's prize bull Adjutant in the second class pleased us greatly, but we thought him too short in frame though very full, and of immense girth. We hear he is sold for 350 guineas, for Australia. Mr. Perry's Salisbury, No. 175, second prize bull, has a very level fine frame, and his general appearance very attractive. Mr. Edward's No. 177, Leominster, third prize bull, has, we think, a still better frame. but not so large and handsome. In this class are 20 handsome animals, but not one commendation is bestowed. In the first class, which is less numerous, they fare much better: only eleven are shown. Mr. Hill's Claret receives the first prize—a very thick and deeply formed bull of immense girth, his back a little defective, and rump and tuts short; he is very handsome. Lord Berwick's second prize bull Severn is a very fine specimen of the breed, large and good, of noble mien, and decidedly handsome. No. 166, Mr. Williams' third prize bull, has a deep full frame, level back, large and full breast and shoulders, body too large. This is a good class. His Royal Highness the Prince Consort receives a commendation with No. 164, Windsor, and Mr. Naylor with No. 171, Lucknow. In the Bull-calf class His Royal Highness takes first prize with a superb little animal, of compact cylindrical form, of great beauty. But we must refrain; the class is an exceedingly good one. The Cow and Heifer classes are exceedingly good. Mr. Rea's Bella is a superb cow, of good size; her sides and plaits are full, and hips good and proportionate throughout. Lord Berwick's Beauty is a beauty, "and no mistake." Mr. Keene's Beauty is a famous heavy cow. In the Heifer class Mr. Rea's Czarina takes first prize: she is deep and good in frame. Lord Berwick's Ada stands next, and Mr. Naylor's Laura third. In the Yearling Heifer class many good and promising animals are shown, which it would be a waste of time to criticise minutely. They almost all appear to be made in one mould, not having yet had time to develope unequal proportions. The class is a very commendable one, but only two received the honour.

DEVONS.

These are generally of what are called the North Devon cattle, and are the handsomest and most symmetrical of any of the cattle classes, and their flesh is of very fine quality. They fatten upon inferior pasturage, for which their small size and propensity to fatten fully qualify them. Their colour is generally a light red. Their cows are remarkable for giving rich milk, and Devonshire cream is universally known. They are very hardy, and the breed dates from time immemorial. The number shown at Warwick is larger than usual, and certainly of equal beauty and quality; but we did not think the classes more interesting than in former years. The exceedingly good quality of flesh and perfect symmetry of form are always pleasing to behold, and their uniformity of colour adds much to their appearance as a class. We could not avoid the impression that the breed must be very much circumscribed, as the names of the exhibiters appeared quite familiar to us as the names of exhibiters of former years. His Royal Highness the Prince Consort and one or two others appeared as new, but such names as the following (and none are more honourable or deserving of their county) have been continually before us as breeders of Devons, *i. e.*: Messrs. John and James Quartly, Turner, Fouracre, Hole, Farthing, Davy, Overman, Pope, Umbers, Merson; and we think it is to them, and a few others that we are indebted for the perfection and perpetuation of this very valuable breed. Mr. Merson's cow Lovely is a beautiful specimen of the breed. Mr. Pope's Fancy the 3rd is a very compact and beautifully proportioned heifer, but she is excelled by Mr. Turner's Vaudine, a more lengthy animal, of complete form and beauty. Mr. James Quartly's The Gem is yet farther the gem of the class: she has a surprising neck-vein and fore-quarter, and is a great beauty. In the Yearling Heifer class, Mr. Jno. Quartly is successful with a most compactly formed animal of great symmetry and beauty. His Royal Highness the Prince Consort is again successful in carrying the second prize with Lovelia, an almost perfect animal excepting her thighs, which are light. Mr. Milders's heifer has a good fore-quarter. The bulls as a whole are highly commendable, but we did not notice any remarkable animals amongst them as deserving our special comment.

OTHER ESTABLISHED BREEDS.

This is a very comprehensive class, including all "established breeds," *i. e.*, Suffolks or Norfolks, Sussex, Channel Islands, Scotch in all their varieties of Angus, West Highlanders, Ayrshire, Kyloes, Galloways, &c., &c. Then again we have Long-horns, Shropshires, Teeswaters, Lincolns, Holderness, Furnills, &c., &c. Then we have Welsh in variety, as Pembrokes, Glamorgans, Anglesea, Cardigans, &c., &c. And we have the Irish in considerable variety, the breed of Kerry and the long-horn Irish being the principal. We have named the above breeds as included in this class, and we inquire if there has been any great progress made in breeding half-breds or cross-breds as with sheep? If they answer so well with the fleecy tribe, why may we not expect a like benefit with the tribe bovine? We know the form of the best Scot has been made to amalgamate with the Shorthorn, to the manifest improvement of the latter. The large Angus would improve the Welsh. Colonel Pennant's large well-formed Welsh bull pleased us much. The Earl of Southesk's polled Angus is a capital bull, of deep frame, and excellent quality; and his Royal Highness's Alderney is good, and well worthy his commendation. Mr. Turville's young bull pleased us: he is very pretty. Of cows and heifers the Earl of Southesk shows a good Angus, and Lord Sondes a good Norfolk heifer, and they stand in the same respective positions in the yearling classes. These classes were not well competed. In the long-horned special prize classes we have some very good cattle: Mr. Holland's first prize bull is a capital animal, of large size, and well proportioned frame; Mr. Taverner's Admiral is a superior bull, stands high, has a long well-formed frame, and of fine proportions. Mr. Hawkes' Wroxall deserves honourable mention. The Cow class or Pairs of Cows was admirably filled: Colonel Inge's pair attracted much attention; they are very excellent animals, large, and finely formed. Mr. Godfrey's are exceedingly good and profitable-looking cows. Mr. Twycross showed two pairs of good cows well worthy the commendations they received.

SHEEP.

Since the establishment of the Royal Agricultural Society much has been done through its instrumentality. Visitors from all parts of the three kingdoms have been yearly brought together; the various specimens of the established breeds in Leicesters, Southdowns, and Longwools, underwent close examination, and ideas new and forcible took possession of men's minds; the splendid animals shown excited laudable and spirited emulation in thousands; men returned home to ponder and plan. From this beginning we have now many admirable breeds of sheep of other kinds, *i. e.*, Hampshire Downs, Shropshire Downs, Improved Oxfords, Improved Longwools, Improved Leicesters, Improved Cotswolds; then we have Improved Cheviots, Improved Exmoors, Improved Forest and Mountain Sheep. All are aiming at advancement. The pure Southdown alone have fully sustained their popularity; the Leiceers retain their purity in some flocks, but as a distinct breed they are certainly losing caste. The prevailing taste throughout the country is to breed the various sorts called Half-breds, and many visitors attend to discover from which class they can best attain this object; hence the Cotswolds and Longwools have become the favourites. We distinguish the Cotswolds from the Longwools because we know them to be a distinct breed: the latter are chiefly found in Lincolnshire and the counties bordering it. The strife amongst the breeders of sheep for the pre-eminence has been long and most arduous, and those breeders who stand foremost are fully entitled to all the honours they win. It is marvellous to what perfection some breeders have brought their flocks. Take Mr. Jonas Webb: the list of prizes obtained by him would more than fill a newspaper twice over. The Duke of Richmond's list would be, perhaps, still larger, as he is an exhibitor of Downs fatted, as well as for breeding purposes; Mr. Elman's, again, would be a very long catalogue; Mr. Grantham's would equal it; Mr. Rigden is coming on apace. Then take, again, Lord Walsingham, a comparatively recent exhibitor. The late Mr. H. Overman was also a successful exhibitor, as also was Mr. Lugar. Mr. Sainsbury, Mr. Hayward, Mr. Pope, and many others, are now contending most laudably for this enviable pre-eminence.

SHROPSHIRE DOWNS.

Mr. Adney, a famous breeder of Shropshire Downs, has generally a first-class letting; his flock was founded upwards of 40 years ago, upon the old black or grey-faced sheep of the county, taking care to keep to the dark-faced character and fine and good wools. His first regular sales and lettings commenced in 1851, at good prices; and for the past four years his sale and letting have averaged about £18 each, many of his best varying from 25 guineas to 84 guineas each. Mr. E. Holland's flock, we understand, quite equals this in his sales and lettings. These instances speak highly for the Shropshire Down breed. We should have been pleased to have given an example of one or two Leicester-breed sales and lettings of rams, but we have been disappointed in the receipt. Mr. Sanday's last year's letting is before us; the average of the 54 sheep let are as follows:—25 shearlings, £22 8s.; 15 two-shear, £35 17s. 6d. each; 10 three-shears, £23 2s. each; four and five shears, £15 15s. each; or, about £26 each, a very high price, and showing the favour in which the breed is held by its promoters. These few instances show how each breed upholds its favour and character in the different districts of our little country.

We continue our tabular form of the entries of pens of sheep at the different meetings, commencing with the Lewes meeting in 1852, and in accordance with the prize sheet, with the view of showing the state and progress of our sheep classes from year to year:

Place of Meeting.	Leicesters.	South Downs.	Long Wools.	Short Wools.	Other Breeds.	Total
Lewes...... 1852	55	88	15	..	25	183
Gloucester.. 1853	61	95	80	..	53	292
Lincoln 1854	102	67	96	..	38	3 3
Carlisle..... 1855	119	51	63	..	97	330
Chelmsford. 1856	60	105	52	..	2	219
Salisbury... 1857	66	118	94	128	37	443
Chester..... 1858	70	53	77	110	46	356
Warwick ... 1859	92	58	72	122	77	421

LEICESTERS.

It will be seen from our table that this class was well supported, and we have to report that many excellent sheep were exhibited, Mr. Sanday and Mr. Pawlett, as usual, taking the principal prizes, Lieut.-Colonel Inge stepping in with some good ewes for that prize. Mr. Sanday takes all the prizes in the Shearling Ram class—one prize, one high commendation, and a commendation in the Aged Ram class, and the first and second prizes in the Shearling Ewe class. His shearling rams denote a little stronger fleece and larger frame, without detracting from their quality and symmetry, certainly in our estimation a valuable acquisition. Mr. Pawlett sticks close by his original form and beauty. Mr. Sanday's older sheep, No. 519, is a first-class animal; he has a pleasant countenance, good head, capital neck, chine full, plaits good and heavy, level fat back, with good rump, thighs, and fleece, and all in good form. Mr. Pawlett's No. 507 is a capital specimen of the breed. He is all right, except in his "legs of mutton;" but his fat back, good rump, and superb plaits are fully redeeming; No. 508 has the same defect in thighs, and his rump is rather narrow, but his back and plaits first-rate. How is this? Mr. Pawlett often takes precedence of Mr. Sanday in the older sheep class, while Mr. Sanday invariably takes the lead in the shearling and ewe classes. Mr. Banford shows specimens of his pure breed—we think, more creditable than usual, but we don't commend their general frames. Mr. Borton, Mr. Creswell, Mr. Wiley, Mr. Umbers, and other breeders show some superior sheep, but none received commendations except as above.

SOUTHDOWNS.

We have already noticed this popular breed. We shall at once go to the classes. We always like to criticise them; but such was their number, and the crowding of company to view them, that we were almost compelled to relinquish the pleasing task. All we could do was to take a note or two of a few leading sheep. The Duke of Richmond's prize shearling demanded an examination, as having discomfited Mr. Jonas Webb's flock. No. 569 is a good sheep, having a pleasing contour, but not altogether free from faults. His rump and thighs are good; his back level, broad, and well covered; his sides and plaits good. He possesses good looks and a fair fleece; frame rather long. We compared him with Mr. Webb's No. 590, although a sheep that did not carry a commendation. He has a beautiful countenance; a rather short thick neck, nicely formed to chine; and shoulder giving out a fine full plait; capital girth and out shoulder. He has a level fat back, and is a fine outline of a Southdown, having character and nobility of appearance; stands high, and in capital form, with good looks and plenty of wool. No. 592 is a good shearling, compact in form, and of much substance; better chine and girth; rump and back good. No. 593 has a deep, well-made frame of excellent proportions, and much wool. We have never seen Mr. Webb's lots in better character. Indeed, we have always complained of the tendency of the Southdown breed to undue corpulency, owing to the first rib and hip being two wide apart, and therefore letting down the body. Mr. Webb has this year corrected this. Mr. Rigden's lot shows well. He receives three prizes and three commendations with eight pens of sheep. The Duke of Richmond's show in high character and condition. He deservedly receives three first prizes, one second prize, and two high commendations, with eight pens of sheep. Lord Walsingham's lot are good, but do not take with the judges. The Duke of Beaufort's ewes are in good character, as are also Sir G. Throgmorton's. These classes were well sustained.

LONG-WOOLLED SHEEP.

These classes showed in good character and number: their tremendous frames and well-washed wool attracting much attention. Some surprising animals were exhibited; but the extent of the show forbade our individual criticism. Mr. Robert Garne takes precedence this year, having taken three prizes, one high commendation, and one commendation, with nine sheep. Messrs. W. Lane, George Fletcher, T. B. Browne, Handy, Porter, Gillett Cother, and others showed some exceedingly good sheep. We longed for time and opportunity to examine them closely. We can say no more than that it was a splendid show of Cotswolds.

SHORT-WOOLLED SHEEP NOT SOUTH-DOWNS.

In this class was included almost every breed of short-woolled sheep. We found Oxfordshire Downs, West Country Down, pure Shropshire down, Sussex and Cotswold, improved Hampshire Downs, Exmoors, Bretonne, Merino, brown-faced Shropshires. The whole of these classes formed a show sufficient to interest the whole company. It comprised 226 animals of great merit. Mr. W. Humphrey takes precedence in these classes; he has first, second, and third prizes, and a high commendation in the Shearling class, with six West Country Downs; the second prize in the Aged Ram class, and a high commendation; and he takes the first prize in the Shearling Ewe class, and a high commendation. Mr. Druce, of Eynsham, takes first prize in the Aged Ram class very creditably; we name this, because we have long witnessed his attempts to secure a new breed of good character. Messrs. Adney, C. Howard, J. Druce, John Bryan, the Duke of Marlborough, Mr. Gillett, Byrd, Stephen King, W. B. Canning, F. E. Miller, J. and E. Crane, J. W. Brown, M. F. Bennett, and John Moore, all received honours in this very extensive class, which was, very properly, generally commended.

SPECIAL PRIZES.

SHROPSHIRE SHEEP.

This is again a very extensive and superior class, comprising 126 specimens of this exceedingly profitable breed. The honours here are admirably distributed over the district, proving its general applicability, and that good animals are found everywhere throughout its boundaries. We took more extended notes of these classes, and we pronounce them admirable specimens of a profitable breed; but we cannot stay to particularize. Messrs. Coxon, Sheldon, Horley, Mrs. Baker, Messrs. J. and E. Crane, Mr. Adney, and Mr. Holland, divide the prizes pretty equally; and Messrs. Crane, Coxon, Mansell, Bowen, Morley, Thacker, the Earl of Dartmouth, and Mr. Horley, receive the other honours; the class being generally commended.

PIGS,

BOTH IN THE GENERAL AND SPECIAL CLASSES.

We also continue our tabular form of the number of entries of pigs, as shown at every meeting, commencing with Lewes in 1852, under the two respective denominations, as the Large breed and the Small breed.

Place of Meeting.		Large Breed.	Small Breed.	Total.
Lewes,	1852	48	96	144
Gloucester,	1853	38	108	146
Lincoln	1854	45	92	137
Carlisle	1855	29	55	84
Chelmsford	1856	35	69	104
Salisbury	1857	65	121	186
Chester	1858	53	77	142
Warwick *	1859	47	59	106

* Special prizes for Berkshires, 36 pens; other breeds 10 pens; total, 46 pens.

These presented a large and interesting show. About 216 fine specimens of the porcine race were exhibited in all their varieties, totally eclipsing the two acknowledged classes of the Large and the Small breed. His Royal Highness the Prince Consort wins a first prize in the small breed class of boars, and also with a pen of sows. Sir George Throgmorton, and Messrs. Harrison, Woodcock, Gavins, Holdway, Wainman, Crisp, Turner, Morland, Saddler, and Watson, are winners of prizes in the general classes, and in the Berkshire classes Messrs. Hewer, Bowly, Sadler, Smith, Wainman, Col. Pennant, and Mr. Watson are the winners. The classes are exceedingly good, and receive the commendations of the judges.

"NO POLITICS."

Only a few years back an agricultural meeting was rather a hazardous thing to get up. It was so difficult to keep out of a row. It was such a nice matter to say something that should give offence to nobody, and it was still by no means easy to determine what this something should be. In the very height of an agitation that must affect the farmer more than any other, the farmers when they met generally amongst themselves were assumed to have no feeling or voice in the matter. There was a standing rule as to "no politics," and it is extraordinary to observe the extent to which this was insisted on. If a man ventured to claim some kind of recognition for the rights of home industry he was certain to be interrupted with a cry of "No politics." If, on the other hand, he dared to think that commerce and trade could not be too unfettered in their action, he was at once roared down with "No politics." The maintenance of the poor, the pressure of certain taxes, the relative duties of certain classes, all came to be more or less tabooed by the same arbitrary enactment, until at length, when a country gentleman did get up to speak, his inward colloquy with himself was, "What ever am I to talk about?"

The teterrima causa of all this caution has now for some time been removed, and with it much of that stringency which, perhaps necessarily, marked the period of our transition. Farmers now speak almost as freely as other people of any subject that may promise to affect their interests. Not that they discuss less earnestly their own immediate business. On the contrary, the points of agriculture were never spoken to so readily, so fully, or so practically as they are just at present. At the same time, if there be anything indirectly bearing upon the cause, they are almost sure to "out with it." Whether it be the war, the malt-tax, or the Board of Trade, we have the agriculturists' opinion upon what they are doing. The chairman has a little more licence to give and take, and this is rarely abused. Now, for many years past, in our constant attendance at such meetings, we really remember nothing like a disturbance over any of these once forbidden topics. If there is a "sensation," it is, as at Towcester last autumn, from one man telling his fellows that they are not farming their land so well as they should do, rather than from any party encounter betwixt the Blues and the Yellows.

And in this wise our agricultural associations prosper exceedingly. Landlords and tenants of all shades and sides alike support them, willing and anxious to bear and forbear with each other. In fact, we repeat that it is seldom we witness anything like ill-feeling on such occasions. It is, then, with some surprise that we have learnt how a very influential local institution has been in hot-water of late. At the recent meeting of the Norfolk Society, at Swaffham, it appears that the company at the dinner got altogether out of order. They talked politics of the most virulent and party character. Indeed, so offensive did this become, that one of the vice-presidents has, upon mature consideration, determined to withdraw his name and support. The Earl of Albemarle has addressed the following letter to the Secretary: "Sir,—Some years ago, I consented to become Vice-President of the Norfolk Agricultural Association. I did so in the hope that the rule relating to the exclusion of politics from the proceedings of that body would be always strictly adhered to. But, inasmuch as this rule was violated at the late annual meeting, by several of the leading members of the association, I feel compelled to withdraw my name from the list of subscribers. I have the honour to be, sir, your very obedient servant, ALBEMARLE."

It is with very sincere regret that we find the necessity for any such step of this kind. It might almost have been better if so judicious and careful a man as Lord Albemarle had for once consented to overlook the transgression. There are too many touchy curious people ready to follow such an example, the more especially when it is set them in high places. However, as it is, we have only to turn and see how far his lordship's fellow-members offended, and what excuse can be made for them. We are sorry to say a glance over the report shows us that, as Lord Albemarle writes, "the rule was violated" very early in the proceedings. Of course, one of the first toasts on the list was "The Army and Navy," and the gallant gentleman who responded was indiscreet enough to make it a means for attacking the political character of the nobleman, the Marquis of Lothian, who occupied the chair. Only listen to such language as this, introduced into an Army and Navy "thanks" at an agricultural dinner:—"While he was anxious to see the noble Marquis oftener in this county, and to hear his voice, as they had just had an opportunity of hearing it—he should also like to hear it in another place; because, although he knew not what side of politics the noble marquis had taken, although he saw him very properly sitting upon the cross benches in another place; and weighing the nearly-balanced parties to see which side was likely to do the best for his country, he was sure that whenever the noble Marquis did take an active part in public business, whichever party had the honour of owning him would be greatly advantaged by having a man of his commanding talent, of his deep research, and of his thorough independence of character."

This is pretty fair—nearly tantamount to asking the chairman, a new man in the county, to declare, the next time he rose, whether he was Whig, Radical, or Tory. The gallant representative, however, of the Army and Navy had not done yet. "This preface had taken him almost away from the toast to which he was called on to respond. He had left London only a few hours, and had found everybody making anxious inquiries as *to who the new ministers were to be*; but all that they at this meeting had to do was, to know that their premier was found, and that on him (the noble earl) for the moment devolved the office of Secretary for War (a laugh). But being Secretary for War, he was bound to say that he differed from the noble marquis upon those alarms he appeared to have as to the future of this country. *If there ever was a time in which, in his opinion, there was the greatest security for the maintenance of that neutrality which every class of politician was agreed upon, the present was the time. He could not for the life of him see one conceivable cause for bringing this country into collision with any of the continental Powers. He could not see what business the present struggle was of ours.*"

Surely this is all very dangerous ground. Here is a speaker going out of his way to declare himself a party man, and to open a discussion that every other man in the room might take up. Fortunately, they only "laughed." But we can picture the Committee, when the meeting was over, passing a tacit resolution amongst themselves not to give this Army and Navy orator another such a chance of making things unpleasant. He has happily spared them any further trouble on the subject, for he has withdrawn from the Society. In a word, the gentleman who tried to draw the Marquis of Lothian into an avowal of his political opinions—who owned himself to be a party man, and was ready there and then to differ with those who did not side with his party—is the Marquis of Albemarle! The nobleman who secedes from the Norfolk Agricultural Society for the distinct reason that "the rule relating to the exclusion of politics was not strictly adhered to."

Will anybody be surprised to hear after this that the most political speech of the whole evening was that of the Earl of Albemarle, and that he was the first to touch upon topics that were subsequently followed up by other speakers? Lord Leicester, for one, was "imprudent" enough to argue in favour a rifle corps, a matter that has been referred to at almost every agricultural meeting of the year, and that we trust to see spoken to in every other such a gathering yet to come. Mr. Bentinck, one of the county members, also advocated such a system of national defence; while others touched on the prospects of the war and our chances of any share in it—text words introduced to the meeting by Lord Albemarle, and that it was distinctly a compliment to his lordship to make any further reference to. If they had allowed his remarks to pass, as perhaps they should altogether, without notice, the Norfolk Agricultural Society might have still enjoyed the honour of having the Earl of Albemarle as one of its Vice-Presidents.

It is impossible to suffer so curious a story as this to pass without the telling. The more, indeed, it is known, the more good it must do. What are the politics now that an agriculturist must not touch on? Is the formation of a rifle corps amongst them? We really hope not. Are not personalities quite as indiscreet as such kinds of politics as were here introduced? We really hope they are. And has not the Norfolk Society quite as much cause to withdraw from Lord Albemarle, as his lordship has to withdraw from the Society?

"Sir!" hiccups out the drunken butler in Goldsmith's comedy of "The Good-natured Man"—"sir, I say, I sha'nt stop here if Thomas does." "And why not?" asks his master. "Well, sir," is the reason given in answer, "Thomas, you see—Sir—Thomas is given to drink; and as I can't abear a drunken man—I sha'nt keep his company" *(staggers out of the room).*

THE BEST AND CHEAPEST METHOD OF MANURING THE FARM.

Sir,—I am often amused at the various unfounded charges laid at my door, seeing that they originate in the brain of erroneous conviction and unfounded belief. I should think that your correspondent, "Kent," had convinced himself by his own experiment that making meat is the cheapest way of obtaining manure; but as he still seems doubtful, I would recommend him to read Mr. Lawes' paper on the subject in the Royal Agricultural Society's Journal, which ought to convince him scientifically. A farmer will seldom fail to have an abundant crop of corn on one-half his farm if he makes, as I do, ten score of meat per acre on every acre of his farm. The labourer makes thirty-two score per acre. How that meat is to be made is dependent on circumstances.

Nothing pays me better than giving sheep 1lb. of rapecake per day; as they get fat, they will eat nearly 1½lb. per day. Rapecake costs £6 per ton, as manure it is worth £3 3s. per ton; and we believe that 7lbs. of rapecake will make 1lb. of mutton.

Fattening hogs entails a loss of about 10 per cent., as an average; but still it is much cheaper than guano. 56lbs. of barley-meal is generally considered sufficient to produce 8lbs. of pork.

Fattening bullocks on the principle laid down by Mr. Horsfall is also a cheap way of obtaining manure.

When you have made your manure, take care not to waste an ounce of it. This has been my custom for the last fifteen years, and as a consequence my farm teems with fertility. The slops and excreta from the house should all go on the farm.

Guano pays very well on a distant field, or when you are too busy to cart manure; it is also a good addition to the farm manure for a greedy root crop. Nine-tenths of the land in this kingdom are neither well manured or sufficiently cultivated.

If I know how many score pounds of meat a farmer produces per acre, I can generally make a shrewd guess what his crops are.

Yours truly,

Tiptree, June 8. J. J. Mechi.

P.S.—A labourer usually fats one pig, using 4 sacks of barley-meal, and adding about six score to the weight of his pig. This, on his garden of one-eighth of an acre, would be 48 score per acre, or the consumption of 15 to 16 quarters of barley per acre.

ANCIENT BABYLON *v.* MODERN LONDON.

Sir,—We read, in ancient history, of Babylon being 60 miles in circumference, surrounded by a wall 350 feet high by 87 feet thick; therefore Babylon within the walls stood upon 144,000 acres. What became of the sewage 3,000 years ago is not mentioned. Let us consider that Babylon shone in the dark age of witchcraft and giant Gogs and Magogs; mockery animals, great in size, but small in mind. We read of Assyrian monarchs paying great attention to agriculture, and Persian kings awarding premiums with their own hands to the best cultivators. But so long as the above fabricated monsters were allowed to pass as existing, agriculture must be at a very low ebb.

What were the puritans of that age about? as they did not enlighten the people. Or did they want to keep them in ignorance, so that they could more easily impose upon them? The steam, gas, and telegraph are too powerful to be obstructed by witches or witchcraft; and the *Mark Lane Express* and *The Farmer's Magazine* are too strong and useful to be checked or clogged in their progress by giants or bad legislation. If the sewage of Babylon, in the days of Alexander the Great, of Macedon, ran into the sea, it is no reason why the sewage of London should manure the sea now.

We are told that London and its environs cover 20 square miles, which is 76,800 acres, with a population of over 2,500,000 souls, which is about 32 per acre. I believe the population of Babylon is unknown. Our agricultural implements in husbandry would astonish the Babylonians much more than witches. Samuel Arnsby.

Blue Bell Inn, Peterborough, July 6.

THE AGRICULTURE OF CANADA—ITS FUTURE DEVELOPMENT.

So many small farmers and others, tempted by the free grants of land offered and the cheap facilities of passage, have emigrated to Canada within the last year or two, and the steam communication is now so regular with that province, that its agricultural prospects and social condition are watched with considerable interest by thousands who have relations there, or are interested in business connections with that colony.

The agriculture of Canada is its mainstay, and agricultural products constitute the great bulk of the exports. Out of a total of about £8,000,000, to which the annual exports approximate, the whole, with the exception of half a million yielded by the fisheries, the mines, and manufactures, are furnished by the forests, the fields, and the farms. Its wheat produce has gone on increasing by millions of bushels, although subject to the usual fluctuations of deficient crops and diminished foreign demand. Still, as an enlarged quantity of land is yearly cleared and brought under culture, the agricultural width of the province increases, and though there are checks to prosperity there as elsewhere, the advance is progressive and the accounts not unsatisfactory.

The general depression of trade in Canada during the past two years may in some measure be attributed to the short crops of the two last harvests, the failure of which, in an agricultural country like Canada, must vitally affect its commerce, especially so when the cultivators of the soil become imbued, as many of the farmers have been, with a restless spirit of speculation, involving them in obligations altogether beyond their usual means of liquidation. The enhanced value of produce naturally communicated itself to land, the basis of production, which was eagerly sought after as an investment by farmers and others, until, in their desire for speedy wealth, they overstepped the bounds of prudence, and made large investments in wild lands and other unproductive property.

Notwithstanding the disturbing causes, prices all over Canada ruled higher than in periods when there existed an active European demand. The Canadian farmers realized rates which, had the crop been at all near an average, would have been highly remunerative' and when taken in connection with the decrease in the value of property, the scarcity of money, and the depression of almost every other interest, are gratifying in the extreme. The demand was not for local consumption, but was taken by the Americans, and it is certainly creditable for Canada that she can compete in supply with the Western States.

There is a constant and increasing demand in the New England States for Canadian wheat, which bears a very high character among the millers. Flour of a high grade for family use is the principal requirement of the New England markets. A practice, too, is prevalent, of mixing fine Canadian with ordinary Western grain, which produces a description of flour much superior to that made from the Western wheat alone. But not only in regard to the superiority of samples is Canada favoured, but a great advantage also accrues to the Western districts, and especially Toronto, from geographical position. The proximity of that port to the American markets is greatly in its favour. It will not pay American shippers to bring grain from Chicago, Milwaukie, or even Detroit in small lots: large cargoes, of from twelve to eighteen thousand bushels, are alone remunerative; and this is often much more than is immediately required by a miller, who has not only to run the risk of loss in the value by a long voyage, and take the chance of a decline in the market, but he must have large means at his disposal, which is not always the case. By purchasing at Toronto or neighbouring ports, he avoids all these troubles. Small cargoes of three to ten thousand bushels are available within a few days' notice; the risk of loss on the voyage and the chance of a decline are much lessened. Again, Toronto enjoys an advantage in the comparative length of the season of navigation. They ship from that point a month earlier and later than from Western ports; and this, at a time when stocks are light, is of great importance. The shipments from Toronto of flour and wheat are made to Oswego, Ogdensburgh, Cape Vincent, Rochester, and Portland in the States, and Montreal, Quebec, and other ports of the province.

The shipments of flour and wheat from Toronto last year to the ports named amounted to 114,266 barrels of flour, and 579,333 bushels of wheat. This shows a falling off, as compared with the previous year, to the extent of 48,212 barrels of flour, and an increase in the export of wheat amounting to 73,711 bushels. There is much less difference than might be expected in view of the acknowledged failure of last year's crop.

Although labouring under the deficiency of short crops the last two years, and with the British market less open to them, the Canadians seem to have done exceedingly well last year with their agricultural produce. The harvest in this country last year having been excellent, there was a lighter demand here for the products of the western world than usual. Hence American and Canadian produce was almost a drug on the London and Liverpool markets, drooping prices prevailed, and there was almost a continuous decline throughout the year. The imports of wheat from British America were not lowered very much below the average of the two preceding years. We received in 1858, 100,821 bushels, against 114,795 in 1857, and 111,819 in 1856.

The average monthly price of fall wheat in the Toronto market steadily rose from 83 cents in January, to 1 dollar 14 cents the bushel in December. From a tabular statement before us, it appears that the highest price realized for wheat in the Toronto market in the last 13 years, was in June, 1855, when 11s. 9d. currency per bushel was paid in several instances, and that the lowest was in the months of October and November, 1851, when 3s. 1d. was the highest price realized.

There is a branch of trade closely identified with agricultural progress in Canada, and that is the lumber trade. Besides its large individual pecuniary returns, there is to be taken into the calculation the clearing and settlement of the lands from which the timber has been cut, the villages which spring up wherever a saw mill is erected, the large number of persons employed in getting out, squaring, and manufacturing the timber, the shipping engaged in its transport, and all the various departments of trade dependent upon this large branch of business. It is in Eastern Canada rather than in Western Canada that "lumbering" is most extensively carried on. But even in the upper province there is a large amount of land cleared from time to time of timber. Thus the saw-mill operations on the northern line of railroad saw, on the lowest calculation, 30,000,000 feet per annum, and the resources of that section are sufficient to afford a supply at this rate for seventy-five years. This estimate does not include the country beyond Collingwood or on the Georgian Bay; but merely embrace a tract within five miles of either side the line of the road, and within ten miles of the shores of Lake Simcoe.

In dairy produce and animal products generally, Canada makes less advances than she might do. Take the trade of Toronto as an instance for the last year. The provision trade, it is true, is improving. Thus, instead of depending solely upon the Americans for pork, the Canadians now breed their own hogs, and the home supply and demand are nearly equal. Thus nearly 1,000 tons of pork were purchased in Toronto for home consumption and export in 1858.

The transactions in butter were light, and generally for local consumption. The exports from Toronto were 13,000 cwt. Its value might be much improved if more care were taken in packing. The butter generally is good; but the mixture of different varieties and colours makes it present an unfavourable appearance, and of course less saleable. There is no reason why a large business should not be done in Canada in butter, as there is every facility in making, and a constant demand.

The same with cheese. There was a large importation from the United States, and but little of the local consumption is supplied by the Canadian farmers. Not less than £4,000 was paid in Toronto alone for cheeses, which might have gone to the farmers of the province if they had but energy enough to lay themselves out for it. There is too generally a neglect of these subsidiary articles of commerce, which are always in demand at remunerative prices. With the increasing facilities of railroad and canal communication in Canada, eggs, poultry, butter, cheese, cured provisions, and market garden produce will always find a ready sale in the large towns whose population increases so rapidly. Prof. Johnston, Dr. Mackay, and every intelligent observer who has recently visited Canada speaks highly of its industrial resources and agricultural capabilities; and if the difficulties of a short labour supply can be got over, and the winter be forward, there is fair prospect of success for industry and application.

ON THE UTILIZATION OF THE WASTE PRODUCTS OF THE FISHERIES.

OSLER'S PATENT FISH MANURE.

The enormous consumption of guano, its high price, and extensive adulteration (not in England only, for large quantities of ground coprolites are exported for mixing), have led to the reasonable desire to obtain an auxiliary, or substitute, which shall yield, like guano, a large proportion of azote and phosphate.

The most obvious source of such an auxiliary is the fishery, by which it may be hoped that we shall find an equivalent for the Chincha islands, on the 3,000 miles of our own coasts; any substitute that could be found would confer a substantial benefit on the country, and give employment to a branch of industry deserving of encouragement. It may be asked, why the manure from sea birds, which is to be found on some of our northern rocky islands, should not equal foreign guano? This is fully accounted for by the humidity of our climate, the frequent rain washing away its most valuable properties; whereas, in Peru it never rains, and the manure is deposited stratum on stratum, when it consolidates, dries, and returns all those powerful ammoniacal elements which are especially required for the luxuriant growth of agricultural crops.

We have around our sea-board an unfailing supply; and if, instead of trusting to the chemical agency of birds, we were to convert the fish, which swarm our coasts, into as profitable manure as they will produce, it would materially assist our fisheries, and be a valuable boon to agriculture. Owing to the facility of its decomposition, and consequent difficulty of transport, it has heretofore been unemployed for this purpose, except on the coast lands where found; but, by means of this patent process, fish is converted into a dry, inodorous, and easily-transported article of commerce, and carefully prepared, without the loss of its elementary constituents, will produce greater results than Peruvian guano, at a much less cost.

It has been ascertained, by multiplied and satisfactory experiments, and confirmed by actual working, that the waste and refuse fish may be thus converted, and the gelatine and oil collected. The machinery and the process are most simple, inexpensive, and effectual. The resulting manure is a dry fibrous powder, which retains all the fertilizing powers of the fish, in a form most convenient for use, its appearance and sensible properties will make adulteration almost impossible; since every one could judge for himself, by the mere inspection and smell, of its genuine character. The demand would certainly far exceed the utmost attainable supply, and at a price cheap as compared with any other manure, it would give a very large profit to the manufacturer. The waste and refuse of a great fishing port would supply the materials cheaply, and without risk; and as it will be a great additional gain to a fishing adventure to obtain a certain and constant demand for all their waste and otherwise unsaleable fish, the establishment of manufactories of fish manure will lead to new fisheries where without such aid they could not be prudently commenced.

None but a fisherman can tell the take of a trawler; the quantity of fish in the sea is illimitable, and there are no bounds to the supply. It only depends on energy and the exercise of skill to afford any quantity that may be required. All the inhabitants of the ocean may be converted into guano. Nearly all except the best fish have hitherto been thrown away, the farmers declining to take trouble to procure them, although quite ready to admit their good qualities. Skate, dog-fish, five-fingers, prawns, and small crustacea, may all be converted into valuable manure; and a certain market for refuse and broken fish will tend to the more perfect development of the fisheries. It is said a cod produces more than three millions of eggs, a ling nine millions, and other fish several hundred thousands; and the question of supply would be set at rest for ever, were common industry, patience, and perseverance employed in securing this vast wealth that exists on our coasts.

A manufacture of fish manure, by a patented process, was carried on by a French company at Lowestoff. The fish were exposed to the action of high-pressure steam, then subjected to hydraulic power, and finally dried and ground. The process was necessarily troublesome and expensive, and the oil and gelatine removed by pressure, would be so contaminated as to be very greatly reduced in value. Moreover, the state of inodorous powder, to which the manure was reduced, offered great facility for adulteration. Hence the manufacture proved a commercial failure, and has been abandoned.

It has been attempted to utilize refuse fish by treating them with sulphuric acid for superphosphate. This has failed, as was inevitable from the small proportion of phosphate of lime in fish. Its only use is to convert insoluble into soluble phosphates; but the quantity of insoluble phosphates is not great and the acid, unless so greatly in excess as to injure the manure, would not touch it. The analysis of the Patent Manure shows that the solids left by the process contains only from 6 to 7 per cent.; and as the manure is the solid part of from two-and-a-half to three times the quantity of fresh fish, it follows that the entire fish contains only from 2½ to 3 per cent. of phosphates.

Fish contain muscular fibre, as the chief part of the solid mass; phosphate, and a small proportion of carbonate of lime, in the bones and scales; gelatine, chiefly in the skin and air-bladder; oil, either under the skin and among the intestines, as in the pilchard; diffused through the fish, especially in the thin part, as in the salmon, mullet, and mackerel—or in the liver, as in the cod, shark, skate, and dog-fish; and water, which enters very largely into the composition of every part.

Fish scales may be procured wherever there is a smoking house, and be a valuable addition to the manufacture, on account of the ammonia and phosphates which they contain: these are similar to hair, horn, wool, and other appendages of the skin. The action of ammonia on such solids promotes their decomposition. Their advantage is, that nothing is wasted: their defect, that they are slow. This they have in common with bone-dust. Scales ground and mixed with fish manure will be quite as good as Peruvian guano: the fish powder would act quickly, the scales more slowly; but all would be good, and no waste. The Patent Fish Guano will have the animal fibre, of which the azote will be converted to ammonia when the manure decomposes in the ground; and this is its great excellence. It is not like guano, which evolves ammonia with such intensity that it will kill vegetation unless diluted. This manure will not give any, for it has none, till it decomposes by moisture by being put into the ground, and then the clay will absorb it as fast as it is evolved. Common care to keep it in a dry store will suffice; and if accident should wet it, as on shipboard, it will take no harm for a few days, but may be dried, and will be then as good and safe as ever. The proportion of azote and phosphate will vary with different fish, at different seasons. It is enough to fix all the manuring principles, and remove all that is worthless for the purpose. The body of the fish is excellent: it contains much phosphorus, as we see by the shining of stale fish, and abounds with ammonia; and, prepared in a form available for preservation, carriage, and distribution on the land, no manure can be better.

What we require is a cheap, simple, and effectual mode of separating the principles which are needless for manure—the water, the gelatine, and the oil—the two latter sufficiently pure to be commercially valuable; and of leaving all the azotized principles and phosphates—the fibre, the bones, and the scales—in a state for keeping and for use. I believe this object to be fully attained by a process which I have discovered, and of which the specimens sent herewith are results. All that is useless for manure is completely removed by an easy and safe process, which leaves the solids as a fibrous powder, while the oil and fish-glue are obtained in a merchantable state. The machinery is not expensive, and may be put up by any intelligent workman; and no particular skill is required to conduct the process. The oil and fish-glue will generally cover the cost of manufacture, and even afford a satisfactory profit. The manure retains in a concentrated form all the azote and phosphorus of the fish, and its fibrous appearance will enable the agriculturist to judge of its genuine character without analysis.

The manufacture, carried out on an extensive scale, would have a great value independent of agriculture. The power of converting all inferior and superabundant fish into an excellent manure will allow a fishery to be established wherever a boat can find shelter; and it is needless to observe how great a blessing to the labouring population is an abundant and cheap supply of fish at their own doors. As a substitute for guano we can only look to that which is its original source, namely, the fishery. The main difference between guano and fish, as prepared by my process, is, that a large proportion of the animal fibre has in guano been destroyed by digestion; so that the phosphates remain united with a smaller proportion of ammoniacal principles, and that the ammonia, instead of being fixed, as in my manure, flies off by heat and exposure. Both manures would be ineffective applied to a dry soil; but the guano under such circumstances would lose its ammonia: the fish manure would only be preserved till moisture should decompose it. Fish manure retains its azotized matter with the phosphates in their proportions as they exist in the fish. Analyses by the first agricultural chemists show an average product of 80 per cent. animal fibre, 6 phosphates, 8 to 12 water, and 2 to 6 earths and earthy salts derived from the bones of the fish and the sand in the contents of their stomach.

A manure containing so large an amount of azote must be very valuable; and for crops where a larger proportion of phosphates is required, it is easy to add superphosphate as needed. The manure would thus afford the fertilizing elements of guano, in the same degree, and at half the cost. Ten tons of inedible firm fresh fish will produce nearly three tons of guano, and a similar quantity of salted about four tons, in which the salt will remain in the fibre, but lessening its value by affecting the analysis, and the water holding the gelatine in solution, when it is not boiled down for fish glue, or isinglass, would be a valuable liquid manure, though available, of course, only for the immediate neighbourhood. Fish refuse will be more or less decayed; hence the dark colour of the water. We cannot prepare gelatine from it, and would separate the oil with difficulty, while the fibre would be broken down. The beautiful clear fibrous result is from sound fish, and from these alone we can get gelatine.

The following is condensed from a report by Professor Way (of the Royal Agricultural Society of England), on fish manure:

"It is perfectly practicable to produce from fish a portable manure of great value, not subject to alteration by keeping, under ordinary circumstances. There cannot be a doubt of the value of this manure, especially for corn crops; and the manufacture of manure from fish, offers the only available means for supplying the demand for additional ammoniacal manure, and will, if carried out on an adequate scale, be of essential benefit to the agriculture of this country."

The fish manure produced by my patent, is rich in the best fertilizers—ammonia and phosphates. It has been tested by the following analytical chemists: Professor Way, of 15, Welbeck-street; Professor Anderson, on account of the Highland Agricultural Society; Dr. Stockhardt, of College, Tharand, Dresden; Dr. Voelcker, Royal Agricultural College, Cirencester; Dr. Medlock, Great Marlborough-street; Mr. J. C. Nesbit, College of agriculture and chemistry, Kennington; and by Messrs. Sicherer and Hausmann, of 17, Eastcheap, London.

ANALYSES FROM VARIOUS DESCRIPTIONS OF FRESH AND SALTED FISH.

	By Professor Way, 15, Welbeck street, Cavendish-square.	By Dr. Stockhardt, of College, Tharand, Dresden.	By Dr. Medlock, Great Marlborough-street.	By Dr. Voelcker, Agricultural College, Cirencester.	By Messrs. Sicherer and Hausmann, 17, East Cheap.	By Mr. Nesbit, Kennington.
Moisture	11·22	11·09	14·28	13·11	8·21	8·00
Organic matter........	78·48	77·35	76·60	64·59	80·73	81·00
Silica	0·72	1·21	0·53	1·56	1·51	1·65
Phosphate of Lime....	7·55	6·73	6·24	6·86	5·94	3·95
Sulphate of Lime	....	0·77	..	·40	3·61	3·96
Alkaline Salts	2·03	....	....	13·48	....	....
Chloride of Sodium...	....	2·85	2·35	....	....	....
	100·	100·	100·	100·	100·	100·
Containing Nitrogen	12·76	10·59	10·07	9·11	8·09	7·68
Equal to Ammonia...........	15·50	13·06	12·02	11·56	10·58	9·32

Average:—Nitrogen 9·72, Ammonia 12·01.

Fish are used for manure, whenever they can be obtained in sufficient abundance, that is to say, in a few situations and at distant intervals. My process makes it available for every place and at all times, and the cost of the manure will seldom exceed that of the fish from which it is made. The national importance of finding a satisfactory substitute for guano is increased by the waste of vast quantities of the richest manure carried to the sea in sewage, through sanitary arrangements, thus robbing the land to manure the sea. It must give increased luxuriance to sea-weed round the coast, and consequently increased food for fish. The land can recover that of which it has been thus robbed, only by a systematic application of fish for manure. The sea is therefore the only source of an adequate supply, by the conversion of fish unfit for food, of fish when taken in excessive quantities, and for a manure not quite so good from fish refuse.

The principle of the manufacture is founded upon the fact, that when fish or flesh is subjected to a long-continued and moderate heat, the fluids separate, dissolve the gelatine, and leave the fibrous and bony solids. The principle may be shown most easily by putting meat or fish into a Florence flask, and setting this in boiling water, corking the flask when its contents are fully heated. The fluid will gradually separate, while the flesh after a time will be left a dry and insipid residuum. The process is available for obtaining the richest and purest meat gravy in cooking for the sick, and it embodies the principle of my patented plan. In the manufacture the direct application of fire heat is inadmissible; but hot water, steam, or hot air is equally available, and each has its own advantage. Hot water limits the heat to 212; but hot air gives the command of higher temperatures without the risk of burning: therefore assuming the skill and attention of a reasonably competent and careful foreman, it will enable to dry the manure more quickly and thoroughly, and to evaporate the liquor for gelatine. It will be necessary to manufacture from fresh fish, when gelatine is intended to be made, such as dogs, and other sorts not used for food, and the superabundance of good fish for which there is no market. At great fishing stations, the fishermen will immediately deliver all such, when they find there is a sure market and prompt pay.

The external character and appearance of this manure are so distinct that adulteration would be detected by the eye, and the farmer would have in his own observation almost a sufficient security against fraud. Flies may attack it as an animal substance, and if damp it will mildew. When a more rapid action is desired, it should be mixed with soil or compost and wetted with urine to promote decomposition which otherwise might be delayed, as fish-guano must be in a state of decomposition before it can act, and if it would decompose without damp, it would not keep. By mixing fish-guano, which abounds in nitrogen, with the required proportion of superphosphate, the farmer will have a manure fully equal to Peruvian guano, at little more than half its cost. The power to make all kinds of fish available, and to waste none, will allow fisheries to be established in every place, thereby providing, on all parts of the coast, employment for the labourer, food for the poor, reliable manure for the farmer, an extensive nursery for the navy, an effective coast-guard, and help always at hand for vessels in distress. To which it may be added that the exciting pursuits of the fishery may afford the very best means of rendering harmless the juvenile outcasts of society, reclaiming them effectually, by furnishing employment suited to adventurous and unsteady characters, such as juvenile outcasts will generally be found, and introducing them to pursuits which they will have no inclination to abandon for disorderly courses.

The chief seats of fishery where supply is in excess of local consumption, are—Yarmouth, Ireland, Scotland, and its islets; the south-east coast of Cornwall, where there are upwards of 300 fishing-boats of 10 tons and upwards in a coast about sixteen miles long; the regular price of dogs 2½d. a score, equal to less than 8s. per ton; the refuse fish from the hundreds of trawlers for the London and other great markets; in Torbay and Plymouth Sound, France, Newfoundland, &c. "A Memoir on the Cod Fishery," by M. Perrie, of St. Malo, presented to the French Government, in 1782, during the negociations for peace with England, describes the French share of the Newfoundland fishery at that time to be 340 ships, of 36,600 tons, employing

15,000 men, and providing 1,500,000 green cod, 320,000 quintals of dry fish, and 3,340 barrels of oil. John Kent, Esq., Colonial Secretary, St. John's, Newfoundland, tells us "The resources of this country are as yet undeveloped, and were the herring and other fishing prosecuted as a distinct branch of industry, in addition to cod, very large returns would be made."

Star-fish abound on our coasts, and may be found in immense layers, whose gelatinous entrails, very rich in phosphorus, form conjointly with the brittle skin or shell a most powerful manure. It is said the beds around Ostend will yield 30,000 hectolitres annually, and many of our coast lines possess the same amount of this hitherto neglected source of industry.

Thus, from a variety of sources, we can produce a quantity of genuine manure, without waste, and which consists of the azote and phosphate principles of fish, in their most concentrated and available form; the large amount of nitrogen present, affording the most ready and simple test of great value; but the blessing to the country will be in its leading to the establishment of fisheries in every cove, and retaining at home the large sums hitherto sent abroad. SAMUEL OSLER.

Great Yarmouth, Norfolk, June 10th, 1859.

THE SUMMER GRAZING OF STOCK.

The summer grazing of horses is a subject which is very seldom treated upon by any writers upon the management of horses. In fact it is not one upon which much of importance can be said, still there are various points of management connected with summer grazing which are well worthy of consideration, to which in this short paper it is my intention to allude, and chiefly as connected with ordinary grazing and its benefits.

Youatt says, "The spring grass is the best physic that can possibly be administered to the horse. To a degree, which no artificial aperient or diuretic can reach, it carries off every humour that may be lurking about the animal. It fines down the roundness of the legs; and, except there is some bony enlargement, restores them to their original form and strength. There is nothing so refreshing to their feet as the damp coolness of the grass into which they are turned in April or May; and nothing so calculated to remove every enlargement and sprain, as the gentle exercise which the animal voluntarily takes while his legs are exposed to the cooling process of evaporation that is taking place from the herbage on which he treads. The experience of ages has shown that it is superior to all the embrocations and bandages of the most skilful veterinarian. It is the renovating process of nature, where the art of man fails."

This is a clever and concise summary of general benefits derived from the summer grazing of horses, and applies alike to all breeds, from the high-bred Arabian to the common cart-colt.

I am well aware that the summer grazing of racing horses and hunting horses is confined, in far too many cases, to the loose box, and a moderate supply of green food. This may be quite right practice with a few superb horses, to whom accidents are more to be feared than failing health or groggy legs; but to the whole of these classes of horses it would greatly tend to promote their permanent utility; their powers of endurance, strength, and action, if they were permitted to graze at pleasure during the months of May, June, and July, or so long as they are not injuriously annoyed by the insect tribe, or that their feet suffer from galloping over hard pasture grounds.

The state and condition in which these horses are kept for work, are by no means a bad preparation for summer grazing. It is, however, still more desirable that the little remaining flesh these animals carry should be further reduced, so that the change of flesh they obtain from the grazing should be as far as possible a renewal, and with it I apprehend a renovation of the vital powers, or constitution as it is generally called. For this purpose it is simply requisite to reduce their allowance of food, and not to do it by physic or medicinal treatment: "Doctor Green" will do all that more satisfactorily. There may be good reasons for a resort to blistering the legs prior to being turned out; but too much caution cannot be exercised upon this point, as old swellings and enlargements of the leg often give way to milder means. Blistering is acted upon as a counter-irritant, upon the principle that no two intense inflammations can exist in neighbouring parts at the same time. "Hence" says Youatt, "we blister the sides in inflammation of the lungs; the abdomen in that of the bowels; the legs in that of the cellular substance surrounding the sheaths of the tendons, or the sheaths themselves, and the coronet or the peel in inflammation of the navicular joint." One point of importance to be borne in mind relative to blistering legs, is that it is apt to degenerate into grease; another point to be observed in reference to these peculiarly high-fed animals is, that if they are found to be laying on flesh too fast, they must be bled; but it is seldom requisite, and is often attended with unfavourable results. The removal to a less nutritious pasture would generally suffice. It is never desirable to graze several of these animals together; but they must have company, and a quiet old horse or a donkey is often introduced to the pasture with good effect. Their habit is to play and gallop about; and if not provided with a companion of their own species, they will generally greatly annoy the other stock of the field in their playfulness.

THE NAG HORSE OR ROADSTER.—These horses are for the most part (in the country, at least) turned to grass early in the spring, and are continually grazing in the night, and at work by day. When off their journey or their daily work, they receive a feed of corn, and are then "turned afield" at night. In this way they do their work well, and keep in admirable condition. Should they, however, be required for a journey at a quick rate, they are usually taken up for a day previous, and are supplied with dry food exclusively. They will thus perform it without inconvenience or injury.

The Dray or Cart-Horse.—The farm-horse throughout the country is generally managed as the nag or roadster, and as named above; but when fatted for purposes of sale, he is turned to the best pasture the farm will produce. He is usually worked up to five or six years old, and disposed of according to the class to which he is best adapted. If he makes up a large and powerful animal, he is sold to the dealer for a dray-horse; but if he fails to make himself fat, or his dimensions and nobility of character is below the recognized standard, he has to fill the more humble, but not less useful station of a cart or farm horse; and it is the pride and glory of many farmers to work this higher class of horses, although horses of much less value are quite as well suited to their purpose, and are worked at far less risk of loss. This is a matter of taste, and I had almost said luxury. I am far from withholding this splendid gratification to the spirited farmer who can afford it; but it is only such men who should be thus encouraged; the man with moderate means should forego it.

Young Horses—Yearlings.—These, like young cattle, if well wintered, are almost rendered safe for a summer's grazing; but to turn out to luxuriant grass a yearling in poor condition, is a very doubtful course, rendering him liable to all the ills that young animals are heirs to, *i.e.*, catarrhs, swelling of glands, bronchitis, pneumonia, followed by roaring, wheezing, &c., &c. Then again, scouring, colic, inflammation of bowels, &c., ensues; and unless subjected to the most careful treatment, death or permanent bodily weakness is the concomitant result. Two-year-olds are by no means so much to be cared for. Give them a good pasture and plenty of room, and they are sure, if in a healthy state, to make themselves fat. The usual course with young horses is to turn them into fields, with the general stock of the farm, in the proportion of one to about five acres; they will in this way not do much to diminish the quality of grass, for they love to graze those precise spots not well relished by other stock, such as footways, roadways, furrows, grip-bottoms, and the like. If grazed for sale, they should be put into the fatting pastures, and, if necessary, pushed forward with a feed of corn daily, as dealers much prefer a truly well-fed colt, and will give a much higher relative price for him, than if below the proper standard.

Mares and Foals.—Too little attention is paid to mares as breeders. They are generally kept on the farm for service as workers, and if they breed a foal all well and good. This is not quite right. A mare should be rested, and in season should be turned to graze some little time before foaling, a few days at least. After foaling she should have a sheltered pasture or a hovel to run into at pleasure; and if grass is scanty, she will require a feed of corn daily. I wish more particularly to call attention to the proper grazing of mares and foals. "It is the most important period in the life of the horse; and if from false economy his growth is arrested, his puny form and want of endurance will ever afterwards testify the error that has been committed." Thus again, says Youatt; and it is perfectly true. It is only in this early stage of the foal's growth that most attention is required. After a time, or some five or six weeks, the mare may be put to slight work; but then it is not without injury to the foal, even if never so well fed. To bring up a good foal, the mare ought to have the summer's grazing in the ordinary pastures, and a short time previous to weaning she should have a feed of corn daily, so as to induce the foal to partake of it, in order that it may be continued to him when weaned, as it is then essential to his full progress, and to compensate for the loss of his dam's milk. He should also be turned to the eddish or aftermath, till taken up for the winter.

THE SUMMER GRAZING OF SHEEP.

First, the pastures. It is impossible to graze sheep advantageously unless the pastures are prepared and preserved in a fruitful and profitable state throughout the summer. The preparation of the pasturage will depend much upon the nature and kind of pasturage, *i. e.*, meadow-grass, clovers, seeds, saintfoin, tares, or other artificial grasses: be they of whatever kind, it will be requisite to lay them in early in the spring, or during the winter, so as to be in readiness as early as possible to take the sheep stock immediately after they have finished their winter food. The ordinary pasture grasses may be winter grazed up to the 1st of February, but all other kinds should be rested during the whole winter, and not to be stocked till they have commenced their spring growth, and the stronger that growth the better.

The Ewe Flock.—The commencement of ordinary spring grazing will be with the ewe flock. In almost every district throughout the United Kingdom the ewes pass through the lambing season on the turnip crop, or they are fed on pastures from the turnip or mangold crop—generally the latter in the present improved order of things. As soon as the lamb is of sufficient strength and growth, the ewe is drafted on to a field of reserved grass or seeds, clovers, &c., there also to be sparingly supplied with mangolds or turnips. She is thus fairly launched into the summer's grazing, and, generally, as the respective grasses become sufficiently fruitful and well-grown, the mangolds or turnip supply ceases. This, however, should be cautiously done. It is best to keep up a supply, however scanty, so long as the farm can afford it, and then to be followed by limited rations of cake, which should be continued to the lambs during the whole summer. The supply of cake should be continued to the time of shearing, when that to the ewes might cease; but provision should be made so that it might be continued to the lambs throughout the summer. This every breeder can contrive as best suits his convenience. At the time of weaning the ewes should be taken to the most inferior pasturage of the farm for a few days, to moderate and rectify their milk: the lambs to remain, and a slight increase of cake to be given them. It is now proved beyond doubt that a moderate allowance of linseedcake to ewes while suckling is of incalculable advantage both to ewe and lamb: it keeps both in admirable condition, and prepares them for their winter keeping; so that but little loss ensues by death, and the extra produce of wool alone nearly suffices to cover the cost of cake. In the common course of summer grazing it is usual and advantageous to intermix the sheep stock of various ages, but generally the ewes and hoggets of the flock take the inferior pastures of the farm, and the fatting sheep take the stronger and most fattening pasturage. Young cattle, also, and one or two horses in a field, is a good and profitable commingling of the farm stock—the cattle to consume the bents and rougher grasses, the horses to eat up the grass of the coarse furrows, paths, roadways, and the like. As the lambs grow and thrive they eat more, and a change or easing of the pasture must take place. This should be done by selecting all such sheep as appear to have thriven the least, and promote them to a better pasture, or to an eddish or clover aftermath. The summer grazing of lambs ought to finish by about Michaelmas at the furthest, when they should be put to their winter keeping. The ewes will by this time require drafting: those not intended for further breeding purposes to be placed to winter keeping for fatting; the remaining, or breeding ewes, might remain on the pastures, or be run or placed thinly over the stubble fields; in any case taking care that they be kept in a satisfactory and improving state; if otherwise when put to tup, a scanty fall of lambs may be expected in the spring, and those not of the strongest character. These are minor points, but well worth every grazier's atention, as the prosperity of his breeding flock mainly depends thereon.

The Grazing of Fatting Sheep.—Every breeder and grazier is now turning his careful attention to promote the early maturity of his flock. It is now becoming the almost universal custom to accomplish the fatting and the preparation for market of all the sheep stock not required for breeding purposes at an early age. Fattened sheep now seldom exceed twenty-one months, and are only shorn once. If, however, they are kept longer, it is the breeds of larger growth, producing more valuable fleeces of wool, and which are therefore shorn a second time. The Downs of every shade and character are all fattened early. The modern and very valuable breeds of "half-breds" are all got off early. The Leicesters are also generally fed off at an early age. The Cotswolds and Longwools are perhaps the longest on land, but their immense increase in weight, and the extra quantity of wool they produce, fully compensate for any delay in their final fattening and transmission to market. There are various modes of fatting this sheep stock, according to the precise character of the pastures upon which they are grazed. The best mode on the common grass fattening pastures is this: Let the pasture be laid in for the most part during the winter, or certainly not later than the 1st of February. It will then have time for the soil to lighten, the roots to expand, and the blades of grass to put forth. When it is well greened over, *i. e.*, the grass itself is fairly seen, it is ready for a partial stocking, and a few of the best sheep may be drafted into it, so that they may be getting forward ready to be sent to market as the pasture requires easing in the summer. As the pasture improves, more may be added, according to the requirements of the pasture; for it must be borne in mind that these fatting pastures must be kept in a true fatting state, or the sheep will not thrive fast enough. They must be kept short, thick, and of one uniform growth of from 1½ to 2 inches in length. No tufts or hassocks must on any account be permitted to accumulate or stand. For this purpose a horse or two in a field, as already noticed, or a few young cattle, as "*benters*," are desirable adjuncts to good sheep grazing; and, if my readers won't smile, I would say a small flock of *geese* would be an additional help to the well-doing of the sheep. They crop the long coarse blades of grass, the buttercups, the sorrel, many weeds, and other not very desirable herbage. Failing all this, the scythe must be used. If the pastures can be kept thus right and nutritious, the sheep will merely require the shepherd's attention, and to be left as undisturbed as possible. They will each, almost to a sheep, soon know his own peculiar place of lairage, and will in equable weather generally resort to it, or near it, and they very seldom require removal to another pasture. Our best sheep-grazing lands will thus admirably fatten the stock put upon them; but should the land and herbage not be of this first class order, then resort must be had to corn or cake to bring them equally forward. It is exceedingly good practice, too, on almost any land, as it not only helps the best lands to fatten them faster, but it enables all lands to carry more stock, and adds greatly to their grazing powers. Grass lands are amazingly improved by this mode of grazing. The writer has about seventy acres of grass land upon which this course has been practised with great success; and if the prices of wool and mutton retain their present rates, he will adopt it upon the grass of his whole occupation. Inferior grass lands have thus been converted into very useful fatting pastures, carrying a large amount of heavy sheep. The number of sheep fatted per acre upon these and similar lands would average about seven light-woolled, and six to seven heavy-woolled sheep; and what is remarkable this year is, that the light wool is not worth so much per lb. as the heavy wool. We are speaking of fatting pastures, not of the general pastures devoted to grazing the breeding flock and store stock: these may be depastured in greater numbers. It is superfluous to remark that these grazing lands must be kept clear of weeds, *i. e.*, thistles, nettles, ragwort, and every other pest.

Not long ago our old facetious friend, "Punch," in the exuberance of his talents for wit and satire, treated his admirers to a familiar portrait of an old-fashioned farmer, in long coat, capacious waistcoat, immense brogues, top-boots to match, and the old broad-brimmed yeoman hat, with hands in his enormous pockets, sadly musing whilst pacing his fields, and at length giving utterance to his thoughts, something like this, "Well, here's a pretty go! I've got so much corn I don't know what to do with it." Now, if our old friend's hypothetical case is taken to apply to grass, it is really correct; for we, in truth have, in this present unexampled season so much grass, that we "don't know what to do with it"—*i. e.*, we don't know in what way to turn it to the best account. I am afraid my few remarks thereon may be of little avail; for I am in the same happy predicament—"I don't know what to with it."

I will, however, offer a few suggestions with the view of calling a little attention to it, and, if possible, aid some of my brother graziers in this most unusual difficulty. In the first place, put on all the stock the lands usually carry; but be cautious how you put on more. It may be more advantageous to permit the grass to "run away," rather than to crowd upon it stock bought in at a dear rate at the great hazard of doing well. I say bought in at a dear rate, because it is a matter of course, that when such a great and sudden flush of grass occurs in any season, the price of grazing stock invariably rises. It has done so very considerably this season. The grazier has therefore to use his judgment as to the prospects of profit. He must bear in mind that stock seldom thrive satisfactorily upon a superabundance of highly luxuriant grass. The chances are that he had best adopt a middle course, and which I believe is the general one, to buy in a few extra cattle and a few more sheep, but still carefully avoiding the error of overstocking. Let him suppose this extraordinary flush of grass to pass away; this exceedingly growing weather to cease, and to be succeeded by hot, arid, sunny weather, his pastures gone, and his stock on hand, he will then most feelingly exclaim, "I've got so much *stock*, I don't know what to do with it." I would again say, be cautious not to overstock. Generally, or on the average of seasons, the customary amount of stock will ere the grazing season closes consume most of the pasturage; and breeding flocks are daily requiring more food. It is always desirable to have plenty; but profusion is certainly an evil in grazing. The stock leave the coarser herbage for the finer spots: consequently these get overeaten and bare; the coarser grows still coarser, and in the end has to be cut with the scythe. This of course will readily account for the unsatisfactory grazing of an unusual number of stock.

My next remark or suggestion is, that in preference to buying in stock, an additional portion of grass land should be cleared and *laid in* for meadow to be mown for hay. This I think the best course: as it is a case of emergency, the mowing must be made to depend upon the requirements of the stock. It may not be convenient to allow the field to lay long enough to grow a good crop for hay; it must be mown when requisite, so that the stock does not suffer from too long overcrowding in other pastures. The eddish will be found highly conducive to promote the progress of the poorer or more backward stock, while at the same time it forms an admirable relief to the old grazing land, in taking off the superabundant stock. In this way all are kept progressing; for it is more towards the middle of the grazing season when the stock begin to retrograde, either from heat, fly, bad water, bad herbage, restlessness, or other similar causes; so that the change of the inferior or more backward stock to new pasturage tends to resettle them; and by giving more room and scope to those remaining, they will also graze more quietly, and, of course, improve proportionably. I repeat, then, try for a larger hay-crop: it's very useful in winter.

Another suggestion I would make is, that the roughest plots of grass should be mown in small portions daily. This will keep those places from growing so extremely coarse that no stock will either eat the herbage as grass, or when made into hay; but it being thus gradually mown, the stock delight to pick it up as it decays.

Another suggestion is that, if the field of grass gets very full—"runs away"—then take out all the cattle, and mow the grass, "hob it" over, make it into hay, lead it, and get the field again in readiness for the cattle as soon as possible. Sheep would be best out for a few days; but they don't injure the hay like cattle.

Another suggestion I would make is, to permit a field or two of grass to "run away." These will be found, in the autumn, a highly useful aid, on many farms, to take in the store stock required for consuming the straw in the winter, or in "manufacturing the straw" of the farm into manure for the turnips, &c.

Another suggestion would be, to do the same on farms used solely for grazing, and consume the grass in the winter by a herd of hardy cattle—Scotch, Welsh, Irish, or strong shorthorns.

Another is, that this runaway grass should be stocked with sheep in the winter, to be supplied with mangolds, turnips, &c., *ad lib.*, together with a plentiful addition of cut chaff, hay, and straw.

Another is, that a portion of this rough grass, on a solely-grazing farm, should be left till spring, to take in the grazier's early purchases; so that they may be rested, restored from all the prevalent diseases, and be thus settled and prepared for a more satisfactory summer grazing.

But these minor suggestions will recur to every thinking mind habituated to contrive as best he can for the progress of his business; and he will vary his plans as appears to him most suitable. All I desire, in this short paper, is to call attention to the making of some satisfactory disposition of the abundance with which it has pleased God to supply us.

SUFFOLK AGRICULTURAL ASSOCIATION.

MEETING AT IPSWICH.

This Association, which, on the whole, seems fairly entitled to take the first place among the agricultural societies of the Eastern district, celebrated its twenty-ninth anniversary on 1st July, at Ipswich. The weather was fine, but not sultry—a fortunate circumstance, as the most devoted admirers of agricultural meetings find attendance on them when summer is at its height rather hard work, while those concerned in conducting the various arrangements, penning the stock, and getting them to the place of meeting, undergo an amount of labour far beyond the belief of those who have not troubled themselves much about the matter. Ipswich put on her holiday attire for the occasion, and the principal streets were spanned at one or two points with what were meant for triumphal arches, while banners bearning the erst famous words, "Speed the plough," "Success to agriculture," and other appropriate inscriptions, were hung from some of the houses. The inhabitants, as the day wore on, seemed to turn out *en masse*; the streets were filled with well-dressed crowds; and where business was closely pursued as usual, it was because its votaries had no other alternative.

The proceedings of the meeting commenced with an exhibition of Fowler's steam-plough and Smith's cultivator, in a field near the Fonnereau Park, which, as on former occasions, was reserved for the customary entries of stock and implements. The trial of the steam-plough and cultivator, as also of the reapers and mowers, was not conducted with a view to the award of any prize, but in order to interest the district in the problem of steam cultivation; and if one might judge from the steady stream of farmers and others who poured into the field, the idea was an eminently successful one. The trial certainly considerably enhanced the interest of the exhibition. The engine which communicated motion to the plough of Mr. Fowler was of 10-horse-power, and worked at a pressure of about 40lbs. to the square inch; but it was capable of working up to 70lbs. It was quite a new engine, having only been turned out on the preceding day from the extensive establishment of Messrs. Ransomes and Sims, which is one of the main props of Ipswich industry. We understood that the engine and entire apparatus were exhibited as they will be shown in a few days at the great Warwick meeting, and if it works there as well as it did on Friday, it will probably receive an official commendation. The soil was cut to the extent of about six inches, but this depth can be increased to 9½ inches. Three ploughs were comprised in the ploughing apparatus; the progress made over the field was rapid and well sustained, and the amount of work done was estimated at about an acre per hour. Several improvements in matters of detail have been effected in the engine, the arrangements with respect to the windlass having been much simplified; and the entire cost of the whole apparatus, comprising engine, tackle, anchor, 800 yards of steel rope, &c., was stated to be £670. The number of individuals employed were an engine-driver, a ploughman, and three boys to attend to the rope "porters," which support it at intervals, in order to save it as much as possible from being worn unduly by excessive trituration with the ground. The cultivator of Mr. Smith was put in action by an ordinary 7-horse-power agricultural engine, by Messrs. Turner, of Ipswich, the windlass and the remainder of the apparatus being from the establishment of Messrs. Howard, of Bedford. The great object of this apparatus is the getting land clean in a short time to receive seed, and the soil is broken up, or, to use an expression employed by the lookers-on, "grubbed" in both directions, laterally and longitudinally. The depth to which the cultivator worked was between seven and eight inches, and it was urged that the velocity with which the implement moved disturbed a greater depth of soil than was actually cut. The cost of the cultivator, rope, &c., exclusive of the engine or motive power, was stated to be £206, and the human force employed was five men and a boy, including the engine-driver.

There were four reapers and mowers at work, two by Messrs. Burgess and Key, one by Messrs. Samuelson, of Banbury, and one by Mr. Harwood, of Mendlesham. The latter united the functions of a reaper and mower. The apparatus was constructed by Mr. Woods, of Stowmarket, and it was virtually its first appearance. It attracted some notice, and it was stated that while exceedingly simple and taking up little room, it made a comparatively wide cut. The other machines did their work exceedingly well, and a considerable extent of clover was quickly laid low, the cut being very close and clean, while the seeds were but little scattered. Messrs. Burgess and Key's implements were also set to work on some green wheat, and knocked it down in a most summary and effective fashion. A crowd of farmers followed the machine, but from the speed at which it traversed the ground behind the two powerful horses, they had hard work to keep up. The cut was sharp and clean, and the only regret we heard expressed was, that it was unripe corn which was "operated" upon.

The trial of these implements agreeably occupied the morning, and at noon the general exhibition in Fonnereau Park was thrown open to the public. There was quite a rush at first to obtain admission, and the living stream continued to pour on steadily for some two hours, when the tide began to set in a contrary direction. The park, with its graceful undulating expanse and grand old trees, looked exceedingly beautiful, and as it is at the same time only a few steps from the principal line of street, it would be impossible to find a more suitable place for the meetings of the Society.

The first objects which met the eye of the visitor were the pigs, and he then proceeded by easy stages through the sheep to the stock, and from thence to the horses. The show of swine was about an average, there being 34 entries. As usual, Mr. T. Crisp and Mr. G. M. Sexton figure prominently in this class, but they did not have matters all to themselves, a tolerable amount of competition appearing. A circle gathered round Mr. Crisp's monster sow, which was universally pronounced an astounding porcine "development." Leaving the companions of this extraordinary animal to their peaceful slumbers—the pig appears to adapt himself readily to any circumstances in which he may find himself—the majority of the company soon passed on to the sheep. These were not in very extraordinary force, although 54 entries were made. Mr. Hugh Aylmer was, as usual, victorious with his beautiful Leicesters, which, it need scarcely be said, looked as well both in respec to size and wool as at the recent meeting in Norfolk. The Suffolk black-faced breed were also, as was to be expected, represented, but only four gentlemen exhibited them. Mr. G. Dobito took the lion's share of the prizes as regards this class of sheep, of which Sir Edward Kerrison did not speak very highly, as a recent comparison with the Cotswolds led him to infer that while they were more expensive they were less profitable. Mr. Crisp, and Mr. G. Sexton (Wherstead) were successful exhibitors of Southdowns; and the latter gentleman seemed to have called in to advantage one of the Babraham rams. The stock department comprised about 80 entries, and it will be seen that the names of Mr. Crisp—either in connection with Chillesford or Butley Abbey—and Lady Pigot appear frequently in the prize list. The Suffolk bulls and cows were creditable, although one or two of the latter seemed out of condition, and the bones and general anatomy were brought out in rather too distinct relief to please the eye. The heifers of Lady Pigot were very good, and took first prizes in each class. Their names, which it may be interesting to give, were, "Cherry Empress," 3 years old, bred by Mr. Douglas; "Baroness Warlake," two years old, bred by Mr. Outhwaite; and Empress of Hindostan," calved November, 1857, and bred by Mr. Jolly. The red Suffolk heifers and bulls also well sustained the reputation of the county. The fine roan Durham bull, successfully shown by Major Parker, was exhibited at the last meeting of the society at Bury St. Edmund's—at least so said report; but fortune was not then so propitious.

The great feature of the society's exhibitions—and it is a circumstance of which the members are justly proud—is the horse stock, more especially that intended for agricultural purposes. The present meeting was fully up to the mark in this respect, more than half the entries being derived from this department of the show, while the space of ground covered by the animals was very considerable. Of the 307 entries, 134 were of the "agricultural" class. The stallions above three years old were a tolerably good lot, but by no means equal to former years. Neither of the winning horses at Bury were sent, which was to be regretted, as a second comparison would have been interesting. Nor were Barthropp's Hero nor Crisp's Marquis in the ring. In fact, the only "great" horse was Emperor, the winner once more of a special prize of £30, open to all England. He was here pronounced by a high authority to be "almost perfect," and certainly held his own famously; but "all England" did not take up the gauntlet so spiritedly thrown down by the subscribers to the prize. A portrait of Emperor, after an acknowledged good likeness by Corbet, appears in the *Farmer's Magazine* for July. His pedigree and a complete history of the horse accompany the print, from which we take the following description:—"The Emperor is a red chesnut horse, with a few grey hairs shot here and there through his coat. He stands something over sixteen hands high. He has the most beautiful blood-like head perhaps ever seen on a horse intended for 'agricultural purposes.' He has a strong neck and fine crest, good oblique muscular shoulders, deep girth, and first-rate loins and quarters. His hocks and arms are also excellent; and he has a small but good foot. He stands short on the leg; and this, with his fine quarter, makes him a very lengthy-looking horse, but still with a short powerful back. Emperor is, altogether, one of the most handsome and symmetrical cart-horses ever seen, possessing in perfection those three leading 'points'—great strength, fine quality, and capital action."

The second prize was ably competed for, and was carried off by Mr. Baylham's chesnut horse Duke, while commendations were awarded to four other animals. The three-year-old colts were as a class very good, perhaps the best lot on the grouud, and undoubtedly for uniform excellence superior to the aged horses.. The two-year-olds were also good, although somewhat few in number. As regards the other classes, the one-year-olds comprised several nice animals; the mares with foals were very good, and the foals fair; and the gast mares and fillies also elicited considerable approval. The cart geldings made up rather a scanty show, but there were one or two good animals. In thorough-bred stallions Capt. Barlow maintained the lead, which he has taken in former years, with Recovery Junior, the winner at this meeting two years since. It would be tedious amid so much excellence to reiterate the adjective "good" in regard to the various other classes; but pedigrees of a few of the prize animals are appended:- Mr. Joseph Hare's dark-bay stallion for coaching purposes (Young Sebastopol) was bred by himself, sire Sebastopol, dam's sire Arcos; Mr. Sebborn Gonner's chesnut colt, which received the prize of £5 offered by the Duke of Hamilton, for the best entire cob for riding purposes, was bred by Mr. H. Stearn, sire Man Friday, dam' sire Gainsborough; Mr. J. Gobbitt's dark-brown mare, which obtained the premium offered by the same nobleman for the best cob mare with foal at foot, was twenty years old, bred by the exhibitor, sire Plowman's Phenomenon; Mr. T. Waller's prize brown foal was bred by the exhibitor, sire the Lion, dam's sire Crusader; Mr. W. J. Burch's prize chesnut roan foal was bred by the exhibitor, sire Revenge; Mr. N. Welton's przie chesnut riding gelding, was bred by Mr. T. W. Medcalf, sire Jockey Scott; Captain Barlow's prize brown carriage gelding was bred by Mr. B. Green, sire Castor; Mr. J. Matthews's prize grey gelding Baron, was bred by the exhibitor, sire Castor, dam's sire Old Phenomenon; Mr. Schreiber's prize chesnut riding gelding, two years old, was bred by the exhibitor, sire Oakley, dam's sire Mus; Mr. J. Matthews's chesnut mare Pet was bred by the exhibitor, sire Prickwillow. The scene presented in this section of the exhibition was extremely animated and interesting, worthy in fact the pencil of Landseer or Rosa Bonheur.

The implements occupied the other side of the park, and made a brave show, as no inconsiderable portion of the apparatus and machines which are yearly scattered over the length and breadth of the kingdom, and even find their way to foreign shores, are turned out in Suffolk. Messrs. Ransomes and Sims had a neat little 3-horse-power engine at work, and a more solid affair of

8-horse-power; Messrs. E. R. and F. Turner, another Ipswich firm, sent four engines, ranging in power from two to six horses; and Mr. C. Burrell, of Thetford, and Messrs. Garrett, of Leiston, were also represented in the same direction. All these makers exhibited in their engines an excellence of workmanship justifying the remark attributed to an eminent engineer, who observed that it was as good, as far as it went, as that to be found in railway locomotives. These various engines communicated motion to a number of machines and other implements, and the air was filled with the whirring jargon of sounds generally to be detected at agricultural meetings. Of the other exhibitors, it will be sufficient to give the names:—J. Hurwood, Ipswich; Smyth, Swefling, near Saxmundham; Syer, of Hadleigh (agent for Messsrs. Picksley and Sims, Bentall, Hunter, Eaton, and Hill and Smith); Cambridge, Bristol; Woods, Stowmarket; Samuelson, Banbury; Burgess and Key; J. Cooper, Ipswich; Smyth and Sons, Peasenhall; F. Mason, Ipswich; Smith and Ashby, Stamford; Hughes and Son (millstones); Prentice and Co. (asphalte floors and cereal manures); E. Rands, Ipswich (sacks, &c.); R. Coleman, Chelmsford; G. C. Ferinan (sacks, &c.); Webb and Son, Coombstannery, Stowmarket, &c.

On the whole we may pronounce the exhibition a decidedly successful one. That it was popular and attractive is proved by the fact that it was attended by between 4,500 and 5,000 persons, a very large number for a county gathering. The judges must have had some difficulty in making their awards, amidst so much excellence and such a comparatively numerous body of exhibiters. Their decisions are embodied in the following list—

AGRICULTURAL HORSES.

JUDGES.—J. Claydon, Littlebury, Saffron Wolden.
— King, Preston.
W. C. Spooner, Eling, Southampton.
— Spurling, Shotley, Ipswich.

Special Ipswich prize of £30 for the best entire horse for agricultural purposes, of any age (open to all England), G. D. Badham, Bulmer, Essex (Chester Emperor).

First prize of £10 for the best stallion, having served not less than twenty mares in the county, G. D. Badham (Chester Emperor).

Premium of £5 to the breeder of first prize, G. D. Badham.

Second prize of £5, W. Wilson, Baylham Hall (Duke).

Highly Commended.—Joseph Smith, Hasketon (Raglan).

Commended.—W. Clark, Iken (Briton); W. H. Mumford, Bramford (Captain); and W. Stearn, Elmsett (Prince).

First prize of £6 for the best three-year-old entire colt, James Everitt, Brightwell (Premier); second of £5, T. Crisp, Butley Abbey (Emperor).

Highly Commended.—C. Barnes, Kettleburgh (Champion).

Prize of £5 for the best two-year-old entire colt, Maurice Mumford, Creeting; second of £4, R. H. Wrinch, Harkstead (Comet); third of £3, T. Crisp.

First prize of £4 for the best one-year-old entire colt, Sir E. C. Kerrison, M.P. (Red Eagle); second of £3, Samuel Plowman, Earl Stonham.

First prize of £6 for the best mare with foal at foot, G. D. Badham; second of £4, Charles Frost, of Wherstead.

Highly commended.—Isaac Rist's chesnut (Scott); and Mr. S. Wolton's chesnut (Diamond).

Commended.—R. Tricker (Poppet); N. G. Barthropp (Gyp) Saml. Plowman; and Joseph Smith, Hasketon (Diamond).

First prize of £6 for the best foal, Francis Keer, Raydon; second of £4, T. Crisp.

Highly commended.—Joseph Smith.

Commended.—George Sexton, Wherstead; Rev. J. Y. Cooke, Semer.

First prize of £6 for the best gast mare, E. G. Hodgson, Charsfield; second of £4, Henry Laws, Kirton Sluice.

Commended.—Sir E. C. Kerrison, M.P.

First prize of £6 for the best three-year-old filly, T. L. Tiffen, Siamhall, Newton; second of £4, N. G. Barthropp, Cretingham (Remnant).

First prize of £5 for the best two-year-old filly, L. Wrinch, Arwarton (Diamond); second of £3, Charles Frost, Wherstead.

Commended.—Capt. Barlow, Hasketon; Rev. J. Y. Cooke, Semer; H. Frost, Witnesham; E. L. Gleed, Hoo; H. Laws, Kirton Sluice; and J. Rist, Tattingstone.

First prize of £4 for the best one-year-old filly, S. Walton, sen., Newbourne Hall; second of £3, Charles Frost, Wherstead.

Highly commended.—Charles Frost, Wherstead.

Prize of £4 for the best three-year-old cart gelding, E. L. Gleed, Hoo.

Highly commended.—C. Cordy, Trimley.

Prize of £4 for the best four-year-old cart gelding, Charles Frost, Wherstead.

Prize of £4 for the best cart gelding of any age, J. Gentry, Washbrook.

Highly commended (class not stated in official list).—J. Gobbett, Sudbourn.

RIDING AND COACHING HORSES.

JUDGES.—C. Barnet, Stratton Park, Biggleswade.
E. Green, Bury St. Edmund's.
Rev. C. T. James, Farmers' Club, London.
J. Tyler, Leyton, Essex.

Prize of £6 for the best thorough-bred entire horse, having served not less than 10 mares in the county, Capt. F. Barlow, Hasketon (Recovery Junior).

Prize of £6 for the best entire horse for coaching purposes, having served not less than ten mares in the county, J. Garrod, Cransford.

Prize of £5 for the best entire cob for riding purposes, having served not less than ten mares in the county, Sebborn Gonner, Hoo.

Prize of £5 for the best cob mare with foal at foot, the foal to be by a cob horse not thorough bred, J Gobbitt, Sudbourne.

Prize of £6 for the best brood mare with foal at foot, W. J. Burch, Campsey Ash.

Commended.—G. Gayfard (Fireaway), and J. Josselyn, jun.

Prize of £6 for the best foal for riding purposes, foaled in 1859, W. J. Burch.

Prize of £6 for the best foal for carriage purposes, foaled in 1859, J. Waller, Sutton.

Silver Cup, presented by Captain Barlow, for the best foal by either of the Hasketon stallions, W. J. Burch.

Prize of £6 for the best three-year-old riding gelding or filly, foaled in 1856, N. Welton, Bredfield.

Highly Commended.—G. K. Cooper.

Prize of £6 for the best three-year-old carriage gelding or filly, foaled in 1856, Capt. F. Barlow.

Prize of £6 for the best three-year-old weight-carrying hunter, gelding or filly, by a thorough-bred horse, foaled in 1856, James Matthew, Wickham Skeith (Baron).

Highly Commended.—W. J. Burch.

Prize of £5 for the best two-year-old riding gelding or filly, foaled in 1857, C. A. Schreiber, Roundwood, Ipswich.

Highly Commended.—H. Frost, Witnesham.

Commended.—W. J. Burch.

First prize of £5 for the best hackney mare or gelding under seven years old, J. Matthew, Wickham Skeith (Pet); second of £3, F. Laws, Foxhall.

First prize of £4 for the best pony, not exceeding 13½ hands high, and not under 12, T. Crisp; second of £2, G. Bond, Earl Soham.

CATTLE.

JUDGES.—W. Beauford, Bedford.
H. W. Bennet, Cambridge.
W. Carpenter, Stratford-on-Avon.
W. Dodds, Keelby, Lincolnshire.

Prize of £6 for the best Suffolk bull not under two years old, Samuel Wolton, sen., Newbourne-hall (Robinson); second, of £3, A. Crisp, Chillesford.

Prize of £4 for the best Suffolk bull under two years old, Jas. Read, Laxfield (Young Suffolk); second, of £2, Arthur Crisp.

Prize of £6 for the best bull of any other breed (not Suffolk) not under two years old, Major Parker, M.P., Clopton-hall, Rattlesden; second, of £3, T. Crisp.

Prize of £4 for the best bull of any other breed (not Suffolk) under two years old, T. Crisp; second, of £2, T. Crisp.

Prize of £5 for the best Suffolk cow in-milk or in-calf, Samuel Wolton, jun., Kesgrave (Beauty); second, of £3, Samuel Plowman, Earl Stonham; commended, James Read, Laxfield (Jenny Lind); W. R. Walker, Marlesford.

Prize of £4 for the best three-year-old Suffolk heifer in-milk or in-calf, A. W. Crisp, Chillesford; second, of £2, A. W. Crisp.

Prize of £4 for the best two-year-old Suffolk heifer in-milk or in-calf, A. Crisp; second, of £2, A. Crisp.

Prize of £2 for the best one-year-old Suffolk heifer, J. Garrould, Cookley; second, of £1, B. Collins, Hunston.

Prize of £5 for the best cow of any other breed (not Suffolk) in-milk or in-calf, Sir E. C. Kerrison, Bart., M.P., Oakley-park (Violet); second, of £3, Lady Pigot, Chippenham-park (Lady Sarah); commended, Walter Strutt, Boxford.

Prize of £4 for the best three-year-old heifer of any other breed (not Suffolk) in-milk or in-calf, Lady Pigot (Cherry Empress); second, of £2, T. Crisp (Gaiety II.)

Prize of £4 for the best two-year-old heifer of any other breed (not Suffolk) in-milk or in-calf, Lady Pigot (Baroness Warlake); second, of £2, T. Crisp.

Prize of £2 for the best one-year-old heifer of any other breed (not Suffolk), Lady Pigot (Empress of Hindostan); second, of £1, T. Crisp (Nelly II.)

Prize of £4 for the best fat ox or heifer, A. W. Crisp; second, of £2, George Hare, Holbrook-cottage.

SHEEP.

JUDGES.—W. Beauford, Bedford.
H. W. Bennet, Cambridge.
W. Carpenter, Stratford-on-Avon.
W. Dodds, Keelby, Lincolnshire.

Prize of £6 for the best Southdown tup of any age, T. Crisp.

Prize of £6 for the best shearling Down tup, George Sexton, Wherstead; second, of £2, G. Sexton.

Prize of £6 for the best tup of any age of the black-faced breed, now named "The Suffolk," G. Dobito, Lidgate.

Prize of £6 for the best shearling tup of the Suffolk breed, G. Dobito; second, of £2, J. M. Green, Stradishall Old House.

Prize of £6 for the best long-woolled tup of any age, T. Brown, Marham.

Prize of £6 for the best shearling long-woolled tup, H. Aylmer, West Dereham; second, of £2, H. Aylmer.

Prize of £6 for the best pen of five Southdown shearling ewes, no entry; second, of £2, no entry.

Prize of £6 for the best pen of five shearling ewes of the black-faced breed, now named "The Suffolk," G. Dobito; second, of £2, J. M. Green; commended, H. Wilson, Stowlangtoft-hall.

Prize of £6 for the best pen of five long-woolled shearling ewes, H. Aylmer; second, of £2, H. Aylmer.

Prize of £6 for the best pen of 20 lambs of any breed, G. Sexton; second, of £2, not awarded.

PIGS.

JUDGES.—W. Beauford, Bedford.
H. W. Bennet, Cambridge.
W. Carpenter, Stratford-on-Avon.
W. Dodds, Keelby, Lincolnshire.

Prize of £5 for the best boar, T. Crisp; second, of £3, G. M. Sexton.

Prize of £4 for the best sow and pigs, the pigs not exceeding 12 weeks old, Herman Biddell, Playford; second, of £3, Spencer Freeman, Stowmarket.

Prize of £3 for the best breeding sow, T. Crisp; second, of £2, James Luff, Tuddenham.

Prize of £3 for the best pen of three young sows, pigged since 1st of November, G. M. Sexton; second, of £2, H. Wilson, Stowlangtoft-hall; commended, G. D. Badham, and M Biddell, Playford (for two pens).

At the annual meeting of the members held in the course of the afternoon it was agreed to hold the next meeting at Framlingham.

THE DINNER

took place in the evening, in the Corn Exchange, where tables were laid out for 300 guests. Only about 200, however, took places. The Earl of Stradbrooke, as president of the society, presided, and was supported right and left by Sir Charles Rowley, the Mayor of Ipswich (Mr. J. Head), Sir Fitzroy Kelly M.P., Lord Henniker, M.P., Earl Jermyn, M.P., Major Windsor Parker, M.P., Mr. J. Cobbold, M.P., Mr. T. Burch Western, Col. Shafto Adair, Mr. Barthropp, Mr. Badham, Mr. Barnett, Mr. A. Ransome, and other gentlemen. The vice-chair was occupied by Sir E. C. Kerrison, M.P., by whom were seated Capt. Barlow, Capt. Bennett, Mr. Josselin, &c. The dinner arrangements left no cause for complaint; but the subsequent proceedings, although they extended over three hours, were, with the exception of two or three speeches, of which a report is appended, tame and unprofitable as regarded from an agricultural point of view.

The VICE-CHAIRMAN proposed the health of the noble president, Lord Stradbrooke. Sir Edward observed that upon no occasion had the association shown more effectively what local societies were capable of doing. The merits of the stock were conspicuous, and many of the members had for the first time had an opportunity of witnessing the progress made in steam-ploughing.

The PRESIDENT, in expressing his acknowledgments, said, the popularity of the Society was patent to all, and he believed the smaller farmers of the county had benefited greatly by the example set them by the members in their various districts. Distinguished foreigners in every part of the world had approved and imitated British agricultural enterprize; and the result had been that the food of the poorer classes in Europe had been improved, and that they received more constant employment than they obtained before agriculture became a fashionable pursuit. With reference to the show held during the day, it appeared to have received universal approbation; and he had observed with pleasure a thrashing machine by Messrs. Garrett, in which considerable progress had been made in the way of simplification of the machinery, and reduction of size. This was important, because many specimens of agricultural machinery were too bulky and intricate in their performance. In conclusion his Lordship proposed what we suppose may be regarded as the toast of the evening, "Success to the Suffolk Agricultural Society."

The healths of the "High Sheriff" and the "County Members," followed.

Earl JERMYN, M.P., responded, as did Lord HENNIKER, M.P., who remarked, that although the men of Suffolk were most excellent farmers, he had heard complaints made with reference to the cultivation of pastures. Dean Swift had, he believed, observed that he was the most useful man who made two blades of grass to grow where one grew before. It was a trite observation, but one which ought not to be forgotten; and when the fact was remembered that every foot of ground comprised from 500 to 1,000 roots of grass, while there were 4,000 sorts of grass, scarcely one poisonous in its nature, he thought it behoved agriculturists to make experiments on the subject, and to devote greater attention than had hitherto been given to their grass lands. With this view he should be happy to give a small premium for a short essay on the improvement and the cultivation of the grass lands of the county.

Sir FITZROY KELLY, M.P., who was warmly cheered, called attention to the efforts which he had been making, with other distinguished members of the bar, to carry a bill for facilitating the transfer of land, a measure which would, he believed, have the effect of raising the value of landed property at least 25 per cent. The bill had met with great opposition from members of the legal profession; but in view of the benefits which it promised, and having regard also to the beneficial operation of the Encumbered Estates Court in Ireland, he appealed to the public to express their approval of the measure, and to bring their influence to bear upon the members of the legislature so as to secure its enactment.

Major PARKER, M.P., also returned thanks, and, adverting to the rewards which had been distributed during the day to deserving labourers, said that he regretted to find that not one woman had come forward for the increased premiums offered for dairy servants. Many farmers regretted that this class of servants was not filling the position which it ought to do, and that many good dairies and good pasture grounds had been let down from the difficulty experienced in finding dairy assistants. He hoped that labourers with large families would have their daughters instructed in the industrious pursuits of the dairy. Adverting to the operations of the society, the gallant major added that the man who could produce 80 stone of beef in twenty-four months, and a sheep with six or seven stone of mutton and 17 or 18lbs. of wool on his back in 16 months, deserved as well of his country as another who performed prodigies of valour. He saw many men around him who had effected what he had hinted at, and when he found these societies lead to such results, he could not but feel proud of them.

The "Members for the Borough."

Mr. J. C. Cobbold, M.P., in reply, adverted to the honourable position occupied by Ipswich and Suffolk with regard to the manufacture of implements, and called attention to the recent establishment in the town of a flax factory. He hoped the farmers of the county would grow more flax, and keep the machinery of this factory in motion. He believed they might do so profitably.

The "Royal Agricultural Society of England."

Mr. N. G. Barthropp responded, and observed that there was every prospect of the approaching Warwick Meeting being a most satisfactory one, the entries of all kinds of machinery, as well as stock, being very large.

Sir E. C. Kerrison, M.P., in replying to the toast of the "Vice President," said he rejoiced to find that an addition had recently been made at Ipswich to the number of farmers' clubs established in the county to discuss the breeding of stock and the management of land. The paper recently read by Mr. Bond before the Ipswich Club was deserving of the careful attention of all interested in the management of land. This paper did away with the notion that people who had heavy lands should deal with no other species of stock, whether they were dear or cheap, than heavy stock like bullocks. He (Sir E. Kerrison) thought the first thing to be done with these soils was to drain them well. Although there was a system of drainage in existence, yet, looking at the loans obtained from public companies, and Government, he believed there was less money expended in this respect in Suffolk than almost any other county in England. A great deal of land might be made available for sheep purposes which were now not so made available; and he proposed to give a special prize himself for drainers, that the many good labourers of the county might have an opportunity of exhibiting their skill in pipe-drainage as well as in ploughing. Mr. Bond, in his paper, spoke particularly of sheep having fatted very well; and he (Sir E. Kerrison) believed at a late meeting of the committee of the association the question arose as to whether a certain breed of sheep should assume the name of "Suffolk" or not. It was decided that they should do so. Now in the matter of horses Suffolk was first-rate, for last year the horse which did not win the first prize at Bury St. Edmund's obtained the all-England prize at Chester. In the matter of cows, too, Suffolk had some excellent stock, which were very suitable for those pastures to which Lord Henniker had referred. With regard to the class of sheep which were to be called Suffolk sheep, he did not wish to say a word against them; he saw some excellent specimens exhibited during the day by Mr. Dobito, but he did not wish the breed to be employed merely because they had a black face and black legs. He wanted to see a Suffolk breed which had not only a black head and face, but which would increase in weight in proportion with other breeds. In support of this view of the subject, Sir Edward stated that he recently put up eight Cotswold sheep and eight of the Suffolk breed, as good as he could get them and of the same age. At the end of three or four months he found that the gain of the Cotswolds was 790lbs., and the gain of the others only 670lbs.; and he also found that the black-legged sheep—the sheep they cherished and wanted to call the Suffolk breed—had consumed nearly fifteen tons, while the others had consumed only thirteen tons. The Suffolk cost 5s., while the Cotswold cost only 3s. 3d.; and he had sold the latter while the former were still running about. He wanted the farmers of Suffolk, before they took a breed and called it a Suffolk breed—before they invested their money in sheep merely because they had black legs and black heads, to take care and ascertain their fattening powers; then they might call them a Suffolk breed if they liked. Sir Edward, whose voice unfortunately prevented his being very distinctly heard, proceeded to refer to the rifle corps topic, in regard to which he endorsed the views of preceding speakers.

"The judges, and thanks to them for their services."

Mr. Barnett, in reply, said the show reflected very great credit upon the county, particularly as regards the horse stock, of which those who had been in the habit of attending the society's meetings had never seen so fine an exhibition. Alluding to the Royal Agricultural Society, for which Mr. Barthropp had incidentally expressed a hope that he should have responded, Mr. Barnett added that that body might at the present moment have some little occasion to find fault, but he would only say that possibly any little error which might have occurred might be a stimulus to its future prosperity.

"The successful exhibitors."

Mr. G. D. Badham briefly expressed the pleasure which he said he had always felt in exhibiting animals of his own breeding at the society's meeting.

Major Parker, M.P., proposed the "exhibitors of implements," associating with the toast the name of Mr. Allen Ransome.

Mr. A. Ransome said, he had very great pleasure in expressing the gratification and satisfaction which he himself and those with whom he was associated felt, in knowing that their labours, and the direction in which they had been carried, had met with the kind approval of the members of the society. On the present occasion they had felt it their bounden and paramount duty to bring before the members as full and perfect an exhibition of implements as they possibly could, as the society had so kindly and willingly assisted them in carrying out the views which they had expressed in reference to showing implements at local shows; and he trusted that after looking round the show yard that day, and seeing the very best specimens which could be procured not only from the county of Suffolk, but also from implement makers in all parts of the kingdom, the members of the society would bear their testimony to the desire which he and his friends felt to promote the interest of the meeting in this respect. He believed that the course which had been adopted by the society in meeting the views of the implement makers (in regard to the absence of competitive trials for prizes) would stimulate other gentlemen who, considering the show as a purely local one, had hitherto held aloof, to make entries; and as time advanced and the interest in agricultural exhibitions increased, the members of the association would no doubt see at their meetings the best implements the country could produce. He could not but refer to one implement which had been exhibited during the day, viz., the steam-plough. Through very much discouragement, through a large amount of expenditure, through evil report and good report, the endeavour to effect the tillage of the soil by steam had at length, he was proud to say, been successfully carried through. At last such a state of perfection had been attained that he could unhesitatingly declare that every farmer who had a sufficient breadth of land to cultivate would make the use of the steam-plough advantageous Accustomed as he had been from his very childhood to the mechanics of agriculture—his father and grandfather having devoted themselves to the subject before him—he could say with perfect confidence, well advised, and with careful deliberation, that great as had been the advantages which science had already afforded to the farmer, they were light in comparison with those which had been attained in the application of steam to the cultivation of the soil. They had had a specimen of what might be done; and although he did not desire to arrogate to his firm anything but a small portion of the merit of having been the means of carrying to a successful consummation the ideas of others, he heartily congratulated his agricultural friends throughout the world on the prospect which was before them. He would speak not merely of the reduced cost of tilling so many acres of land, but of the extraordinary advantage which steam-ploughing would afford them at a season of the year when their horses were otherwise employed, and when it was difficult to get this first great operation of agriculture performed, and of its adaptation to the heavy clay lands of the kingdom. Every one who had farmed such lands was aware that the difficulty of cultivating such soil to a sufficient depth was increased by the fact that while their implements required something more than four horses to do what they wanted effectually, these four horses did more harm by their treading than the tillage did good. By means of steam a deeper culture might be readily and easily secured, and he thought he was not too sanguine in saying, that in the cultivation of wet clay lands the accomplishment of a deeper and more perfect tillage would be found a very great advantage.

A few other toasts having been given,

The President vacated the chair, after a very longsitting.

AGRICULTURAL GATHERING AT BOREHAM.

A large number of agriculturists assembled on Wednesday, at Boreham-park, the seat of Sir John T. Tyrell, Bart., for the purpose of witnessing the operation of mowing-machines and other implements, intended to economize time and labour on the harvest field. Among those whe responded to the kind invitations of Sir John Tyrell on the occasion were the Lord Rayleigh, Lord Kinnaird, Right Hon. W. Nesbit Hamilton, Hon. Mr. Justice Bennett (New York), Sir Robert Pigot, Bart., Sir Claude de Crespigny, Bart., Admiral Meynell, Admiral Mc Hardy, W. Ormsby Gore, Esq., Major Ormsby Gore, Esq., M.P., Wm. Becket, Esq., Colonel Boldero, H. Gataker, J. Hodgson, Philip Bennet, Henry Wigram, Benjamin Fitch (New York), Edgar Disney, J. Joliffe Tufnell, jun., J. Bramstone Stane, Charles Halesfoot, Francis Palmer, Thomas Kemble, W. Fisher Hobbs, W. M. Tuffnell, J. O. Parker, J. H. Blood, T. M. Gepp, H. Leigh, G. Hilton, G. Hilliard, Esqrs.; the Rev. C. J. Way; Captain Johnson, R.N.; Messrs. J. Wood, G. Hart, T. Crooks, T. Abrey, I. Perry, W. Tipley, T. Mee, Kemp, Malden, F. Chancellor, Pertwee, Clarke, Christy, Reeve, &c.

The mowing machines at work were two manufactured by Woods, and two by Burgess and Key, and half-an-acre of grass was allotted to each. There was on the lawn near the house the model of a new implement from America: "The Buffalo Mower and Reaper," exhibited by the engineer of the Hon. Mr. Bennet and Mr. Fitch. Mr. Coleman had in operation on the ground an improved steam-power chaff-cutter, with new knives, which take nearly a perpendicular cut, making the power to draw it very light, and with a new roller, by which it is impossible to clog. He had likewise an improvement on his cultivator, in which tines are placed behind the wheels, and there is also a new side lever, by which the depth of the side wheels is more easily regulated.

The guests were entertained by Sir John at luncheon, in a marquee on the lawn.

At the close of the repast, Lord Rayleigh proposed "The health of Sir John Tyrell," with thanks to him for his hospitality and entertainment.

Sir John Tyrell, in returning thanks, expressed his great attachment to agriculture—to the scientific branch of it, he hoped, as well as to the practical; and it was most gratifying to him to see so many of his friends and neighbours, of all political views and shades of opinion in this county, meet on the occasion without any of those bickerings that sometimes took place elsewhere. (Cheers). They had a tremendous failure with the mowing machine last year; he was therefore anxious to see whether they could not mend the matter and do better this year; and having appointed three gentlemen, Mr. Seabrook, Mr. Pertwee, and Mr. William Clarke, to see what could be done in reference to practical agriculture, he should be glad to hear what their report was as to the working of the machines today. No doubt it was a subject of interest to be in a position to see the implement that claimed the advantage amongst those which had been at work to-day. There was also a model of another, which they had no doubt seen, exhibited by gentlemen from the United States, and it appeared of a very scientific nature; but still it would have been more satisfactory to them if they could have seen the implement itself at work. This was a purely business meeting. He had no canvassing to do—he had nothing to ask of anybody; he had no more unmixed gratification than on seeing his friends met there as they were on that occasion; and if it was their pleasure to see any further experiments the cocker and the rakers should be set to work. (Hear, hear). He was told the labourers disliked mowing, which they called "shoulder work," and he hoped the time might come when they would not be called upon to go through so painful an operation. (Cheers and laughter). There were two gentlemen present, one of whom had the handle of "Honourable" to his name, and was a judge in his own country—a good judge, he should also say, of agriculture, or he would not have sent that first-rate model for their inspection, which he hoped was an earnest of what they should do next year. (Cheers). He begged to give the healths of the two American gentlemen to whom he referred—the Hon. Mr. Bennett and Mr. Fitch. (Drunk with three-times-three).

Mr. Bennett and Mr. Fitch duly acknowledged the compliment.

"The Judges" having been toasted,

Mr. Seabrook, in returning thanks, said he and his colleagues on the occasion had had little to do in making their decision, as there was no doubt as to which machine had done its work best. They were thankful to the Americans for introducing a mower that had done its work admirably, but every one must see that Burgess & Key's mower had done its work best, though with what they considered great labour, for it had two very powerful horses, and they had as much as they could carry. Still it did its work well. The little machine left an "outing;" but they thought, in proportion to the power used, it did its work the best of the three. They had also been shown the model of the American machine referred to, but Englishmen were jealous of giving an opinion on a model, and did not like to say a machine would do its work unless it was actually seen doing it. Had the machine been here, they might have tested it with the others. Of the three that were at work he should prefer the little one, with some slight alterations at the side, to make it cut its "outings." It should, however, be added, that the time was very much in favour of Wood's two-horse machine, which cut its half-acre in twenty minutes—that was an acre in forty minutes, or fifteen acres a day—while the one-horse, and Burgess & Key's, did the half-acre in thirty-three minutes.

Several other healths were drunk (including that of "The Ladies," by Sir Claude de Crespigny), and the company adjourned to the park, where the horse-rakers were at work gathering up the crop that had been cut.

Sir JOHN having gathered a circle around him, called attention to a matter in practical haymaking. Alluding to the different hay-rakers, and the improvements that had been made in them, he said none of them would clear more than 2½ feet in height. Therefore, he came in with a wooden rake, partially invented by himself, for it was the old Huntingdon implement, and he attached to it a twitch rake, which was now a matter of history—(laughter)—for not being now an arable farmer he did not want it any longer—(renewed laughter)—and with this he could clear five or six feet into the air, while, as he had said, the other rakes would not clear more than 2½ feet. Thus, with this implement, if there came rain, he could clear four acres while the other rakes would only clear about half that space.

The cocker, mention of which was made at luncheon, was then set to work, and its advantage was seen in the rapid manner in which it laid hold of the scattered crop and drove it into high heaps, so that a man following with a fork could at once complete the cock; and thus a large breadth, in case of storms threatening, could be speedily secured.

The proceedings, we need hardly say, afforded unmixed gratification to all who had the opportunity of witnessing them.

THE MALT-TAX AND THE LABOURER.

SIR,—The letter of your correspondent, who signs himself Thos. Rose, jun., which appeared in your last week's impression, although decidedly clever and satirical, appears to me ingeniously to have put things in a wrong light, and to have taken too one-sided a view of the question at issue.

Mr. Rose finds fault with the following sentence, taken from a lecture "On the Profession of Agriculture, &c.," lately delivered by Mr. Bond, of Kentwell:—

"To me it is perfectly clear, that the poor man—with his difficult practical problem to solve, with his wife, children, and himself to be maintained upon his 8s. or 10s. a week—beer is a necessary comfort rather than a superfluous luxury."

Mr. Rose in this simple sentence appears to find problems greater and more difficult to solve than are to be found in that useful book, "The Elements of Euclid." Well, it is an astonishing fact, that a great philosopher may often be perplexed by a difficulty which would not puzzle a child; however, if Mr. R. will allow me, I will try to answer his questions by endeavouring to explain what I understand to be the meaning of this very obscure and enigmatical passage which he finds so great a stumbling-block. Mr. Rose asks, 1st, "How beer can be proved to be a necessary comfort?" 2nd, "What necessary comfort has to do with 8s. to 10s. a week?" 3rd, "Is beer more nutritious and less expensive than solid food?" And 4th, "What is the nourishing property of beer?" He then endeavours to prove, by various little arithmetical sums, that beer is not so nourishing as wheaten flour; goes on to say, that as Mr. Bond calls beer "the poor man's especial beverage," so he (Mr. R.), from the large amount of gin consumed in town, would call this spirit "the drink of the people," and says that, reasoning from analogy, if we abolish the malt-tax for the benefit of the labourer, we ought also to banish the excise officer for the benefit of the town population; and concludes his letter by ironically supposing, that if beer and spirits were cheaper, drunkenness and crime would decrease.

Now, Sir, I cannot pretend to write such a clever letter as your correspondent, but feeling strongly as I do that I am writing on the side of truth, I will endeavour to answer him.

I think that beer may be proved to be "a necessary comfort rather than a superfluous luxury." Let any man who doubts this live as an English labourer has to live when his family is large, and wages are low; *i. e.*, let him take a large amount of physical exertion, and abstain from meat and all other stimulant. No one but he who has tried it knows what a craving there is in this case for stimulant of some kind. No one but he who has tried it can properly understand how it is that an English labourer has such a strong liking for beer; and no one but he who has lived long in an agricultural district can sufficiently understand and admire how it is that so many of our labourers feeling this violent craving a strong temptation to enter the beer-shop (the only place where many of them can obtain their favourite luxury), yet so nobly and manfully resist it. When we consider the natural effects of the drugged beer of the publican we need not wonder at the extent of drunkenness and crime (the seeds of which have been sown at the beer-shop), but rather wonder that it is not five times larger in our country districts than it is. I believe the result is entirely owing to the forbearance and self-government of the agricultural labourer, which is not nearly so much recognized as it should be. To the man who has it in his power to eat meat daily, beer may be a luxury. I do not deny it; but O ye who would deprive the poor man of a great comfort in your mistaken benevolence. Try physical labour yourselves on graniverous diet, and then, and not till then, can you fairly pronounce what is a necessary comfort to the poor man, and what a superfluous luxury.

To Mr. Rose's next question—"What necessary comfort has to do with 8s. to 10s. a week?" I would simply remark, that low wages will not allow a labourer with a large family to indulge in a sufficient quantity of meat; he consequently feels a stronger craving after other stimulus.

To the other questions—"Is beer more nutritious and less expensive than solid food?" and "Wherein does its real nourishing property consist?" I would reply, that, strictly speaking, beer is not so nutritious as food, for we know that a man can live without beer, but not without food. Beer is a stimulant, and like other stimulants, as tea, coffee, &c., it does not entirely usurp the place of food, but it enables us to do with a less amount, and to enjoy that less amount with greater zest. If there is no use in stimulants, why then do doctors prescribe port wine, pale ale, &c. as tonics? From ignorance, or is it that they know from experience that such treatment generally has a happy effect?

But to take a practical illustration, let us take two sets of labourers, four or five men in each, engaged at the same sort of work. Set No. 1 shall be allowed homebrewed beer, in moderation; set No. 2 shall have no beer; in other respects their diet shall be the same. How will they work? Nearly every farmer can testify from his own experience that the former will do a larger share of work with greater good humour and less fatigue, and on the next morning will be more fresh and ready for work than the others. But chemists tell us that meat itself is a stimulant. Prof. Johnston (Lectures on Ag.

Chemistry and Geology) states that lean meat contains 77 per cent. of its weight in water, while wheaten flour contains only 15 to 17 per cent. of water—a great difference; and several eminent French chemists assure us that meat is not so nutritious as bread, and that the utility of meat consists in its stimulating properties.

In another place I have quoted the "Chemistry of Common Life" to prove that, in all parts of the inhabited earth, the universal feeling of mankind demands some kind of stimulant. Then why should the English labourer be required to live without any? Or, why should a legislative enactment drive him to the beer-shop, instead of allowing him this "necessary comfort" at his fireside? If by law we can so regulate matters that every labourer can have meat daily, they will not complain; if we cannot, let them have cheap malt.

To Mr. Rose's concluding remarks I would say, that there is little analogy between gin and beer; true they both contain alcohol, and if a man imbibes a sufficient quantity of either it will make him drunk; but, as Fluellen says of the rivers, in his amusing comparison of Macedon and Monmouth, "There is salmons in both," so one likeness does not prove that the analogy is the same in other cases. A man ought to take beer for "strength, and not for drunkenness;" it might form part of his temperate and healthy meal, and it would do so more often were the malt-tax abolished. But what are the good effects of gin? Few indeed in comparison with the evil. We know too well its general effect on the London poor; we know too well the squalor, the unhappiness, the misery, the ruin it brings. The Arabs of our streets—the miserable, the thief, the prostitute, and the murderer—carry the proceeds of vice to the gaudy gin-palace, and forget their misery for the moment in the ensnaring glass, only to feel the more wretched and miserable when they wake from their drunken stupor. I cannot see any benefit in cheaper gin; but give the agricultural labourer the means of brewing his national beverage at his own cottage, and I repeat it, in rural districts drunkenness and crime will decrease.

Apologizing for the length of my letter, and enclosing my card for your private satisfaction, I am, Sir, yours obediently,

I. R.

ALEXANDRE DE HUMBOLDT.

[TRANSLATED FROM THE FRENCH OF THE "JOURNAL D'AGRICULTURE PRATIQUE."]

The life of Alexandre de Humboldt is written in every book consecrated to science, letters, and the arts. Possessing an enlarged mind, an indefatigable worker, endowed with extraordinary erudition, versed in botany, geology, astronomy, physics, chemistry, geography, the ancient and modern languages, political economy, the philosophy of all human knowledge, this for ever illustrious man has left indelible traces in the scientific revolutions of the eighteenth century, which he saw completed, and of the nineteenth, which he has accompanied beyond the half. But in order to delineate so learned a man, and give a complete appreciation of his labours, we must, in following his works line by line, give ourselves up to deep meditations, and consecrate long days to a study which will certainly be fertile in instruction. At this moment, in which his coffin has scarcely passed through the crowd, who run to cast laurels upon it—a crowd of peasants, citizens, learned men, warriors, princes, and royal personages—it may not be proper, as the selection which these lines will contain might otherwise require, to search out and tell the general influence exercised by M. de Humboldt over the progress of science, and particularly that of agriculture. Perhaps it is this that may entitle us to a pardon for our rashness in improvising a notice of such a man. We are not accustomed to consider agriculture as capable of receiving even a reflection of the movements produced in civilization by great intelligences. And certainly few persons are disposed to admit that M. de Humboldt has contributed to the progress of agriculture which distinguishes our age. It is so, nevertheless; and it is not one of the least of the glories of that great man. In fact, all things meet in agriculture, because all proceed from it. If a strong impulse is given to the progress of human knowledge, the science of production must feel it; and besides, there are perhaps no men who can be more useful to agriculture than travellers who observe, study, and discover the laws of life on the surface of our planet. Now, M. de Humboldt has been the greatest of observers amongst travellers of modern times.

Frederick-Henry-Alexander baron de Humboldt was born at Berlin the 14th September, 1769, and died in that city the 7th May, 1859. He was the son of an officer who served in the seven years' war as Adjutant of Duke Ferdinand of Brunswick, and of a mother descending from a French family who quitted Burgundy upon the revocation of the Edict of Nantes. He thus inherited from his cradle the force and fulness of the German character, and the generosity of the French heart. Having completed the most brilliant literary and scientific course of studies, under distinguished masters, he composed, in 1789, an erudite memoir on the manner in which the Greeks wove their stuffs, and a work on the geology of the countries bordering the Rhine. It was the epoch in which chemistry under Scheele, Priestley, Lavoisier, Berthollet, &c., achieved a great revolution, and passed definitively from empiricism to the exact observation of facts susceptible of serving as a basis to fruitful doctrines. It was the period also in which botany was all at once enriched with numerous families, by the comparative study of plants of various countries, and in which sprung the fossil flora. Geology was founded under Werner, Leopold de Buch, and others. Lastly, the experiments of Galvani opened a new world to the researches of the physician and the physiologist. The intelligence of M. de Humboldt was powerfully excited by these discoveries, and he published, one soon after the other, a subterranean flora, and a work on the irritability of the muscular fibres; and at the same time becoming the fellow-labourer of the great poet Schiller, he developed under a mythical form his first perceptions upon the vital forces, or what he calls "the Rhodian Spirit" *(Genie Rhodien)*.

But in order to demonstrate the truth of his ideas, it was necessary that the bold young man should dive into the secrets of Nature in all parts of the world; and he prepared himself, by diligent study, for undertaking the travels which were likely to afford him his illustrations. He accustomed himself to the practice of astronomical observations, physics, and chemistry. He understood the use of the telescope, the compass, the barometer, the crucible, and the microscope; and it was necessary for him to take with him the instruments of investigation of all the sciences. It was only after this laborious apprenticeship that he considered himself qualified to set out. We cannot follow him in all his travels, and shall only say that he went with M. Bonpland into Spain in the winter of 1798-9, that in the middle of the summer of 1799 he made the ascension of the Peak of Teneriffe, and that he was found a few days later at Cumana on the American soil. This was the theatre he desired for his researches. His principal object was to discover the junction of the Orinoco with the river of the Amazons, respecting which eminent geographers had expressed doubts. M. de Humboldt did not hesitate to clear the most abrupt cataracts, and to navigate waters never before seen by Europeans. Having established the correctness of his views on this important geographical question, he set out for the island of Cuba, and from thence transported himself to Peru, studied with intrepid attention the Cordilleras of the Andes, the volcanoes of Quito, the Plateau of Bogota, made in June 1802 the ascent of Chimborazo, and reached the elevation of nearly 6,000 metres (19,685 feet), the highest point to which any person has yet ascended. He then went through Mexico, returned to the Havana, and finally to Europe, after an absence of five years.

The results of this memorable scientific expedition were enormous, and are recorded in a monumental work comprising 26 volumes — an encyclopædia rich in materials, which will form, for a long period, a mine for the working of all the learned. It was on this voyage that M. de Humboldt collected and brought home the first specimen of guano that had been seen in Europe, and which was analyzed by Fourcroy and Vauquelin. M. de Humboldt described accurately, in 1804, the Chincha Islands, from whence come almost all the guano now employed in agriculture in Europe. He pointed out the immemorial use of this substance, as manure, by the Indians, and imitated by the Spanish conquerors of the new world. It was also this journey which enabled the illustrious *savant* to compose his splendid work on the geography of plants, and to enrich botany with valuable memoirs of a great number of vegetable families, amongst which are the leguminous and gramineous. We find, therefore, that Agriculture ought to place the name of Humboldt amongst those of its benefactors. Let the cultivators read an admirable little work entitled "Tableaux de la Nature" (Sketches of Nature), and they will learn to love this man, who has described so well the phenomena of the life of the plants and animals which people our planet, in the most beautiful of its manifestations. Those who daily contemplate the lands they cultivate, will find a peculiar charm in nice and intricate comparisons between the various aspects of the earth under its different latitudes. There we meet unexpectedly—as in the "Cosmos," the last great work of M. de Humboldt—with the most ingenious views relating to the reflex action of the exterior upon the interior world, on the end of man, on the laws by which Nature is governed here below, and on the planetary and stellary spaces.

We owe also to M. de Humboldt other works having a direct relation to agriculture. It was he who, in conjunction with Gay-Lussac, by a new method, still employed in the analyzation of the gases, established the constancy of the composition of atmospheric air—certainly the most important discovery yet made upon the constitution of the atmosphere. It led to the discovery of the part or use of oxygen in the respiration of animals, and that of carbonic acid in the existence of plants. M. de Humboldt has also ascertained the laws of the distribution of heat on the surface of our globe. He has constructed imaginary belts of equal temperature, termed *isothermal lines*, which serve to define the climates, and has thus determined the limits of the cultivation of plants, the necessity of hot or temperate houses, and the precautions to be taken in the acclimatization of vegetables.

On his return from the New World, M. de Humboldt allied himself in the most intimate friendship with all the great men of our country (France), and he adopted it for his second native land. He lived more than twenty years at Paris, quitting it only for scientific expeditions; or to bring to a bearing, difficult diplomatic negociations, which kings were induced to trust to him, because he had the art of uniting men, of appeasing their discords, and rendering them favourable. Was it possible for two friends of Humboldt to remain enemies to each other?

In the meanwhile, in 1827, Prussia deprived us of the great scholar, a member of the Institute of France from 1810. But he stayed at Berlin in the first instance only two years, and then set out on a journey across the unknown countries of Central Asia; which, we may say, he discovered, as he had made the scientific discovery of the New World. He dissipated the numerous errors accumulated in the old systems of geography, respecting the cradle of the world; and established the general nature of the laws which he had found in America, upon the meteorological constitution of our globe. On his return from Asia he continued his valuable publications; and henceforth occupied among the learned the position of the revered patriarch. He was then already sixty years old and upwards, and we have had the happiness of possessing him still thirty years in the world, which has enabled him to leave us such vast works that M. Hoefer has, with the unanimous approval of the whole learned world, called him "the modern Aristotle," in a splendid memoir in the *Biographie Generale*, published by Messrs. Didot.

The day after the decease of M. de Humboldt, before that his mortal remains were removed to repose in the Park of Tegel, near those of his brother William, the French Government honoured itself by decreeing that a statue should be raised to him in the Galleries of Versailles, in the midst of the greatest glories of France.

The heart of M. de Humboldt was of equal expanse with his intelligence; he was always good and generous. How many young students owe their advancement to him! He helped them with his influence and his purse, and displayed even an extreme anxiety to oblige them. When M. Boussingault was about to start, in 1820, for the New World, whence he also has returned with honours, M. de Humboldt made himself the fellow-student of his young competitor, in order to teach him the use of those same instruments which he himself had used in the interests of science with so much *eclat* twenty years earlier. Whenever a young man addressed himself to him, he expressed an eagerness to do all in his power to be useful to him. We shall allow ourselves to relate a personal fact. In 1844 we presented to him, at Berlin, a letter from his illustrious friend, M. Arago; in the evening, this aged man of seventy-five sought us out, to give us ten letters of recommendation, which he had hastened to write in order to facilitate our introduction to the savants, and other great personages of Germany. He was thus with everybody, affable, conversable, witty, and cheerful; benevolent, complaisant, generous. At all times he advocated the cause of liberty and freedom, and he loved the people as men. Three weeks before his death—before that death whose approach he had foreseen, and had foretold for 1859 (in a letter written in 1857)—he wrote to M. Boussingault: "I do not love war; but if it must break out, I cannot help expressing the most ardent wishes for the independence of Italy." J. A. BARRAL.

REVIEWS.

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA, VOL. II.

Toronto: Thompson and Co., 1858.

CANADIAN AGRICULTURIST AND JOURNAL, AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA, MARCH, 1859.

Toronto: Thompson and Co.

The prosperity of a new country like Canada is best ascertained through the progress it makes in agriculture. The first duty of a colony is to occupy and cultivate the land for a subsistence; and when that object is attained, to endeavour to secure markets for the disposal of a surplus of produce. The one is the dictate of self-preservation; the other, the desire of accumulation. It is not until a new nation feels itself strong enough by the attainment of the latter object, that a portion of its resources can safely be devoted to other objects; and it then becomes a question of policy, determined by the relative price or value of labour, whether it is advisable to establish manufactures of articles that can be obtained of older states much cheaper, and in exchange for the products of agriculture. In a new country where land is abundant and cheap, the legitimate employment of the people is agriculture, and every portion of labour employed in manufacture retards, to that extent, the progress of the cultivation of the soil and the occupation of the land.

We have a notable example of this in the case of the United States. It has been thought advisable to establish manufactures at an expense to the people of not less than from twenty-five to thirty millions sterling per annum; whilst at the same time labour is so dear, that the proper cultivation of the land is neglected, and the produce is consequently yearly falling off. Hear what the Hon. Horace Greely stated at an agricultural fair recently held in Fayette County, Indiana, on the subject.

> "It is a melancholy truth that while the acreable produce of Great Britain has increased at least fifty per cent. within the last century, that of the United States has actually fallen off! With all our boasted progress, our fairs and premiums, our books and periodicals treating wholly or mainly of agriculture, our subsoil ploughs and vastly improved implements, our self-glorifying orations and addresses at gatherings like this, and our constant presumptions and assumptions that no people were ever so enlightened and free from antiquated prejudices as ours—this is the net result. Even I can remember when the New England farmers grew wheat as an ordinary crop; now you shall not find a patch of wheat grown this year or to be grown next, on one New England farm in five hundred. Thirty-five years ago, when I was a boy employed at land-clearing in Western Vermont, I used to see thirty or forty wheat-laden waggons pass daily in October and November, on their way to market at Troy or Albany; now, Vermont does not export a bushel of wheat, but imports at least two-thirds of the flour consumed by her people. In those days, western New York produced larger crops of wheat than any other section of our union; and 'Genessee flour' was about the best that could be bought anywhere. To-day, New England not only does not, but could not, by her ordinary processes, produce eight bushels of wheat to each arable acre; while the product of my own State does not exceed ten bushels from each acre sown.
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> "We are quite likely, before the close of this century, not to be able to grow enough for our use. Our longest cultivated soil is, on the average, far poorer this day than it was when Columbus first set his foot on the shore of the New World, and the larger part of it is steadily growing worse. Old Jamestown, the site of the first attempt of Englishmen to colonize North America, could be bought to-day for less than it was worth in John Smith's time; and Plymouth Rock, though not quite so badly run down, cannot prudently take on airs at the expense of her rival. There are hundreds of square miles together of Maryland, Virginia, and the Carolinas that yield absolutely nothing, and are scarcely worth taking at a gift; that is to say, it would be cheaper to buy good lands at 50 dol. per acre, than to take those at a present and make them worth as much as the former. In whole sections they know no other way of renovating worn-out fields than to throw them into commons, and let them grow up to bushes, and ultimately to wood, then clear and start afresh—which is a little behind the agricultural wisdom of the days of Moses."

The above is a valuable lesson for Canadian farmers, of which those of the Upper Province do not fail to avail themselves. The agricultural reports will be read with interest by those who have the welfare of our Canadian brethren at heart. The agricultural associations are sustained with great spirit, and the best proof of their efficacy in promoting an improved cultivation of the land, is found in the increasing quantity of produce exported and the large acreage yield of the land. The opening up of roads and water-ways for getting the produce to market has involved heavy expense to the young colony, but the money could not have been expended on a better object, and will soon be repaid by the great facility it affords for reaching the Atlantic coast, which is now within a few hours' journey of any part of Canada, by the Great Trunk Railway.

The "Canada Company" is the subject of some severe animadversions in the first of these Journals. Their operations appear to have been conducted on a system, profitable enough to the company, but inimical alike to the interests of the country, and fatally so to those who have been unfortunate enough to take *leases* of their lands—for they refuse to *sell*, because as the country becomes more densely inhabited the land becomes more valuable. Eleven hundred thousand acres of the finest land in Canada (the Huron district) in one block was sold by Government to this Company at 2s. 10¼d. per acre. This land is now valued at 12s. 6d. per acre to the lessee, who is charged a rent of six per cent. upon that sum. Thus, if a man rents two hundred acres of uncleared land, he has to pay £7 10s. interest, *and in ten years to pay the whole purchase money*, £125, or be further saddled with 25 per cent. upon the purchase money, or in default, the land reverts to the Company. Most of the lessees being poor, and having to clear the land, were unable to pay even the interest or rent, much less the purchase money, until four or five years ago the advance in the price of corn turned the scale in their favour and enabled them to fulfil their engagements. It ought to be added that although hundreds of lessees have become defaulters, the Company has not availed itself generally of its power to dispossess them; but, that the system they pursue is narrow, selfish, and inimical to the welfare of the Colony, is admitted on all hands.

Canada we have always considered the most important and valuable colony under the British Crown; certainly the most of a *home* to the English emigrant. He there meets with familiar faces, and familiar *names of towns and counties*. There is something attractive and soothing to the feelings of the wanderer from his native land thus to find a second England, two or three thousand miles away, with all the advantages of exemption from the burdens of the "Old Country;" whilst in the agricultural institutions he finds an exact counterpart of what he has left. England has a peculiar interest in the prosperity of Canada, and we cannot but rejoice to find these institutions so vigorously and efficiently sustained.

"THE WAY TO BE WELL."

By Horatio Goodday, M.R.C.S.

(London: Hatchard and Co., Piccadilly.)

This is a clever and important compendium of the means of promoting health and longevity, comprising in about one hundred pages 12 mo. all that is valuable in the wire-drawn work of Sir John Sinclair on the same subject, which fills two or three thick octavos.

Dr. Goodday, in his introduction, justly states that although the efforts of the Government may do much to promote the physical welfare of the community at large, it is only by individual attention to the means of preserving health, that the benefit of the more public arrangements for that purpose can be available. The requirements he enumerates are: "Intellectual, moral, and religious culture in relation to God, ourselves, and fellow-creatures; a pure atmosphere; protection by dress and habitation against extremes of heat, cold, and damp; alternate exercise and rest; clean linen and diet." These are the principles inculcated in the little work, and enlarged upon under the following heads, viz.—

The Sabbath Day—The Atmosphere—Ventilation—Temperature and Humidity—Dress—Cleanliness—Exercise and Rest—Food—Tobacco-smoking—Excretion—Medical Aid.

In placing the Sabbath day and its due observance as a day of rest and of moral and religious culture, the writer has struck at the root of nearly all the evils destructive of the well-being of society. Assuredly, *as a rule*, it is amongst the habitual Sabbath-breakers that we may look for the drunkard, the uncleanly—the neglecter, in short, of all those laws by which the physical endurance of man is promoted. Dr. Goodday justly observes that, "As a WEEKLY REST, the Sabbath day is necessary to restore what the previous six days' toil has exhausted of the physical and mental energies. This rule applies to all who live by labour of mind or body." "On the other hand," he says again, "it is because God's Sabbath is dishonoured, and the Christian virtues are not cultivated, that life becomes so often a tesselated stage of strife, anger, malice, revenge, jealousy, mortified pride, remorse, despair, selfishness, drunkenness, debauchery, and other vices." We have no hesitation in adding our firm belief that if the Sabbath day was universally observed, as it was originally designed to be, there would be more people live to the age of a hundred years than now die at seventy. We strongly recommend this little book to the attention of our readers.

FARM INSECTS; being the Natural History and Economy of the Insects injurious to the Field Crops of Great Britain and Ireland; and also of those which infest Barns and Granaries, with suggestions for their destruction. Illustrated with many hundred figures on steel and wood.

By John Curtis, F.L.S., Honorary Secretary of the Ashmolean Society of Oxford, and of the Entomological Society of France, &c., &c.

(Blackie and Son, Glasgow, Edinburgh, and London.)

Whilst chemical and mechanical science have justly obtained a permanent footing with the agricultural classes, and even botany—abstruse and intricate as are the nomenclature of families, tribes, and species—has received considerable attention from them, the science of entomology, which is of equal or rather superior importance with this latter, is almost an unknown language. The extent to which agriculture annually suffers from the devastation of the insect tribes, is incalculable; and it might be supposed that the special attention of the practical farmer would have been directed to the subject, in order to acquire a knowledge of the habits, mode of propagation, and means for destroying, these pests of the farm. Yet, we go on year after year suffering from these ravages, and looking on with a sort of sullen despair, as to the utility of any method for their prevention or destruction, or any investigation into their natural history and economy. Mr. Curtis, who stands at the head of British entomologists, is therefore performing an act of grace to agriculturists in bringing his extensive knowledge and intelligence to bear upon this subject, so replete as it is with interest and importance to them.

This work will be comprised in eight parts, each of which will contain two engraved plates of insects, and numerous other illustrations. It commences with the "Turnip crop," and the numerous enemies with which that plant has to contend, from the development of its first leaf to its approach to maturity. It is, however, in the former stage of its existence that it most generally and fatally suffers from the ravages of the "fly," which is a small black or brown beetle, sometimes striped, of the Coleoptera order. It bears the various names of fly, beetle, flea, black jack, and the classical or scientific one of *Altica nemorum,* alluding to its jumping, and its inhabiting woods and groves, previous to the turnip culture in this country. A complete history of this little destructive is given in the work, with the various expedients employed for its destruction. We are glad to see that, amongst these, Mr. Curtis has revived the "Paul-net," which we believe to have been a complete cure when perseveringly used as soon as the "fly" made its appearance.* It was exhibited at Holkham about the year 1808, and was patronized by Mr. Coke; but it was not generally adopted, on account chiefly, we believe, of its occasioning some additional trouble to the farmer. It is only by perseverance that any good can arise from the use of this or any other means of cure. The importance, however, of the turnip crop and the extensive loss of that crop of late years, would, we should suppose, induce a farmer to try every expedient to prevent it in future. Mr. Curtis states that in Devonshire alone, in 1786, 100,000 acres were destroyed by it; and we know that last year many farmers had to sow the land three times, on account of its ravages.

Various methods are recommended for its destruction, in the work before us, amongst which we do not see that of drilling rape or even charlock seed midway between the rows of turnips, taking care to steep the rape or charlock some hours before sowing, in order that they may come up first; and when they are up, and the fly at work upon them, use the Paul-net, by which the field may be cleared of them before the turnips appear. Some farmers sow these seeds with the turnip-seed, because the fly is more fond of them than of the turnips; so that while they are devouring them, the latter grow out of their way; but this is a dangerous expedient.

Perhaps, after all, the most effectual mode of preventing the destructive ravages of the turnip-fly is to ensure as rapid a growth as possible, and to put in plenty of seed. The latter plan will give trouble to the hoers; but of course the more plants there are, the more likely is it that some will escape.

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* Mr. Paul (of Sturston, in Norfolk), the inventor, never lost a crop of turnips by the fly after he employed the net, or rather bag. He also invented a net for taking aphides, or green lice, off the beans, and has taken as many as twelve bushels off a small field of about six or eight acres. The writer knew this gentleman well, he being a relative of the family.

The turnip saw-fly, the parent of the black caterpillar, is another of the most destructive enemies of the turnip, but its appearance is endemic and at few-and-far-between periods. Although this fly has become naturalized in Great Britain, we believe that it is a native of the continent, from whence innumerable swarms arrive at times on our coasts, especially those of Norfolk, on which they have been seen on arrival lying two inches deep on the cliffs, quite exhausted after their flight from Norway, Holland, or France. Marshall, in his "Rural Economy of Norfolk," has given a long and interesting account of this insect, to which Mr. Curtis refers. This voracious intruder upon the farm makes as quick work with a field of plants after they are hoed out, as the fly does with it in its first stage of growth. In 1835, which Mr. Curtis denominates the "canker year," it appears to have been more general than was ever known before, and to have committed greater ravages; its visit lasting from the middle of August to the latter end of October. Well may the farmers dread the appearance of this pest.

The most effectual remedy proposed is the employment of ducks and chickens in large numbers. Where this remedy has been applied the turnip crop has been saved; and the only difficulty is in collecting a sufficient number of those birds to produce the effect. Other remedies have been resorted to, but none have proved so effectual, and attended with so little trouble or expense.

The present remarks apply to the first number of Mr. Curtis's work, in which the subject is amply discussed, and cannot fail of proving both interesting and useful to the farmer, being a practical as well as a scientific history of all those enemies to agriculture, whose legions baffle his efforts and neutralize his most skilful arrangements. The remedial measures proposed are suggestive rather than dogmatic, and embrace the practice of some of our most eminent agriculturists. We shall notice the succeeding numbers of the work as they appear.

EXHIBITORS' ERRORS AND JUDGES' DUTIES.

The season has now fairly set in, and the agricultural "public" have been very busy of late. In fact, they have been almost too much so. Gentlemen in authority and stock of repute have been hurried here one day and there the next, with rather more haste than was altogether convenient or desirable. We have only to trust that the newly-established Society in Essex and its elder brother in Norfolk will not get to loggerheads, but for the future so arrange their meetings as to accommodate rather than to embarrass each other. Nothing could be possibly easier than to determine on a few days' grace between the two. Both Associations would of course be all the better for such an understanding, while just a line early in the year from one Secretary to the other would put everything straight. There was no valid reason that we know of why the meeting at Swaffham should be held on the Wednesday, and that at Colchester on the Thursday in the same week. No doubt both suffered something from so untoward an opposition, and the Essex, Norfolk, and Suffolk Societies must henceforth settle their several show days so as to aid and not to impede each other. It is simply the difference between "feeding" and starving; and there are few such Institutions strong enough to fight it out to the last after the admirable example of the Highland and Yorkshire administrations, who have succeeded this year again in coming into collision. A word on this we should hope would be sufficient. True, that the indefatigable Mr. Torr can arrive from Swaffham in Colchester at two in the morning, and be on the show ground at seven. Admitted, that Mr. Sexton's Cotswold performed yet more wonderful feats in the way of casting his coat and changing his quarters. The common run of us, however, are scarcely equal to this, and many a man who otherwise might have visited both meetings seldom cared to do so when he found he had to be abroad half the night to accomplish it. Even railway travelling may be a little overdone.

It would, indeed, have been far easier to have struck out for the Land's End, and have witnessed the very successful meeting of the Cornwall Agricultural Society at St. Austell. We notice this as remarkable not merely for the good breeds of stock that are now developing themselves in those remote regions; Devons, Shorthorns, and Herefords all apparently flourish there. The show, however, was yet more noticeable for the home-truths which it gave rise to. Neighbour-exhibiter and stranger-visitor met one and the other with the famous Cornish hug. Either went in at once for the throw. Said the natives, when they saw how the awards were placed—"The sooner these fellows are packed off again to Devonshire, or wherever else they came from, the better." The judges, in reply, defended themselves in this wise:—Captain Tanner Davy, on behalf of the judges of the Devon cattle, said: "I beg to thank you for the honour you have done us. I hope our decisions have given you satisfaction; they have satisfied us, and I hope they have satisfied you. I don't much care whether they have satisfied you or not. You put the matter into our hands to decide. I knew no person in the county; I knew no person's stock. We decided according to the best of our ability. No doubt there must be dissatisfaction, because every exhibiter going into a show-yard is prepared to look with a very powerful magnifying-glass at the good qualities of his animal, and he does not see any defect. We (the Judges) must apply powerful glasses to see the defects, and must award the prizes to those animals that possess the greatest number of good points—the greatest quantity of beef on the most valuable parts. As soon as my decisions were over, I took off my badge and walked about the yard to hear the remarks. One hot-headed old gentleman said we ought to be put in the train and sent off to Devonshire. I asked him to be kind enough to tell me what it was all about; he pointed to a second-rate bull in the old class, and said it was better than the first-prize bull. I said, 'Why it is a year and four months older, and yet it girths only one inch more; and that is very little for an animal to grow in a year and four months.' That he admitted; 'but' he said ''tis a better bull altogether.' I told him the first-prize bull was of very much better quality, from head to tail. He said he had nothing to say to that, but the other was a better bull. On that I said 'I have nothing more to say to you,' and we parted company. —Some of our friends have remarked that Cornishmen have been found fault with, for not knowing how to farm. But they know how to make young bulls very fat at a very early age. There's no doubt of that. My friends and I have often before been called on for this sort of work; and therefore Cornish fat could not entice us from certain animals which had tendency to fatten. I contend it was our duty as Judges, not to be led away by fat animals, but to see if there were not other animals, in fair condition, with a tendency to fatten, and of much more even shape. I would draw attention to the first-prize bull and the third-prize bull in the second-class. They would be called by some persons two small, poor little things. But why? Only because so many cwt. of oil-cake had not passed through them. Put as much oil-cake or other nutritive matter into them, and put them side by side with others, and then see how they would look. But, you know, fat will often cover deficiencies. These little animals that we have awarded the prizes to were not fat, but they have tendency to fatten, and it would require more powerful eyes than I possess to point out any deficiencies in their present state. I should not be afraid to meet any gentleman dissatisfied with our awards, and if he would walk about the yard with me, I would fight him, from head to tail, as to any animal that has won a prize. There was among the cows an animal that you may wonder did not get a prize. We did not notice her at all. One gentleman informed me we did not know any thing about it. I replied, 'Very likely not,' but I said, 'The prize is offered for Devon Cows, as milking cows. This cow is owned by a gentleman I have known many years. She is a very beautiful animal—of beautiful quality, and the best shaped cow in the class, in my opinion. But she gave milk only at one teat; and I did not consider that a cow so injured was a fit animal to receive a prize as a milking cow. In agriculture, milk is a rather important element of produce, and butter sells at a good price. We know that it is an all-prevailing law in the animal kingdom, that like produces like; and I believe that the offspring of that cow would be diseased—not to the same extent, but in the same way that she herself is. For that reason we did not award her a prize.' I have mentioned these reasons to you, and let all who are dissatisfied go home and ruminate upon them. I would appeal to any practical man of unbiassed mind, whether they are not reasons that ought to weigh with those who have the duties of judges in a show-yard."

This is rather a long extract; but it is a good, straight-forward, practical speech, full of truths and facts that have been too often shirked, and we should be sorry that our readers should miss it. Captain Davy, however, might have been a little irate at the compliments he received as to "knowing nothing about it," and "going off home." But he was followed by Mr. Phillips, of Totnes, who spoke for the judges of Shorthorns, and who spoke for the Shorthorns much after the fashion Captain Davy did for the Devons:—"I am now going to advert to a subject which has already been introduced. It is a growing evil, and one that ought to be put a stop to, the exhibiting on these occasions stock that have been artificially brought to an unnatural size, only for the purpose of getting prizes. It is an injury both to the public and the breeder; because such animals seldom breed; and if they do, they rarely produce good stock. I believe the remedy is in the hands of the committees who appoint the judges. You know full well that on many occasions there is placed in the hands of judges a rule that they should not award prizes to stock in an unfit state for breeding. The question is, do they adhere to that? I say not. Invariably this question is entirely overlooked, because those who have the management of these societies consider that if they were to carry out this rule they would injure the show, as such and such fat stock from certain breeders would not be exhibited. But I contend it would not be so. Carry out that rule, and you would find that these societies would have much more beneficial effect than they have now. You would find those gentlemen who declined to exhibit would soon return, and would exhibit their cattle in a natural state. Further than that, there are many who now refuse to exhibit very good stock, because they know that on these occasions the prizes are awarded, not to the most skilful breeders, but, very often, to the most extravagant feeders."

Our readers know how long this has been our own argument, and how thoroughly it is justified. It is this over-feeding that brings prize stock into such disrepute—that lands them in America and the colonies dear bargains and barren butcher's beasts. It is this that tends to all the humbug and secrets in the management of a herd, where one set of animals are kept for use, and another for show. It is this that deters so many good men from ever exhibiting at all. The remedy, however, rests clearly with the judges. No matter how ready the Stewards or the Council may be to pass over the abuse, let them only act up to, and speak out, like Captain Davy and Mr. Phillips, and they may soon do a deal of good. Never mind what interested people may say who have dairy cows too fat to give milk, or bulls too pampered to get stock. If they are fit to be judges at all, they can estimate fairly-fed animals quite as correctly as they can the over-fed. And a man who prizes a beast at a breeding show chiefly because it is made up for a Christmas one, is simply sanctioning an absurdity, a contradiction, and a delusion—if not a dishonesty.

SUMMERING HORSES.

Sir,—There are few subjects of greater importance to agriculturists, therefore deserving of elucidation, than judicious treatment of our best friend in the animal creation—the horse: at the same time the interest and convenience of the community are included, and very materially concerned. The difference between a young horse, purchased from a breeder who has reared him in conformity with the most approved usages, and one brought up, as is too frequently the case, doomed to emaciating, comparative starvation in the winter, and the enervating effects of an abundance of rank grass in the summer, is so well known to all who require the active services of the animal, as to render the former infinitely more valuable; thus both parties participate in the advantages —the breeder by the enhanced price, and the purchaser by the far great intrinsic value of the steed.

As an article appeared in your columns of the 20th of June, containing advice not precisely in conformity with modern practice, a few comments may serve to guide the uninitiated, for whose especial benefit such communications are intended. The writer quotes from Youatt, in commendation of spring grass, and has selected a work written some thirty years ago, since which time the march of improvement in the management of horses has made vast progress, as it has also in most other branches connected with agriculture; though, as concerns the equine family, at the instigation of that talented gentleman who imparted the results of his experience under the signature of "Nimrod," and to whom all owners of horses owe a lasting debt of gratitude.

From the date when his articles were published, between the years 1822 and 1828, the "Nimrodian" system, as it is appropriately designated, has progressed to very general adoption. Much of the value of the horse depends upon his early treatment, especially as regards the nourishment he requires. I will, therefore, introduce from an edition of Youatt, published by Messrs. Routledge, in 1855, the re-editing and revising of which were entrusted to me, a few remarks concerning food and its effects:

"It is generally known that the embryo offspring partakes of the health or condition of the dam, therefore the food with which the mother is supplied must affect the foal. This is a subject too commonly disregarded by breeders, although it is constantly demonstrated after the foal comes into life. If a mare be supplied with food which produces relaxation, her foal will be in the same state; and constipation is recognized in a similar manner. The propriety of supplying a brood mare with the best and most suitable kinds of food during pregnancy cannot be too strongly impressed. In the management of young stock every effort should be made, by giving them food which is adapted to the purpose, to bring them to maturity as early as possible; by these means the texture and development of the bones, the sinews, and the muscles is greatly accelerated. The constitution of each animal must be consulted, and it is highly important, if the acme of condition is to be attained by animals when they arrive at an age of maturity, that the growth and gradual development of their frames should be composed of those healthy and invigorating materials upon which the structure of condition can be raised. To accomplish this, hay, oats, and occasionally beans must form the principal items of equine dietary, and grass should be provided only in limited supplies during the summer months. It is to giving growing stock unrestricted quantities of green food that breeders must ascribe a very general cause for their disappointment, and it is by this practice that the kingdom is supplied with such vast numbers of worthless animals. Grass, it may be observed, loses two-thirds of its weight, and a greater portion of bulk, when converted into hay: but that extraneous matter consists of moisture, possessing no portion of fibrine; consequently it contains none of those elements which increase muscular development. If a horse be supported on grass alone, he must eat a vast quantity—equal to more than three times the proportion of hay—to derive an equivalent amount of nourishment. Being very full of sap and moisture, it is quickly digested; consequently the animal must be continually devouring it. This distends the stomach and bowels, and impairs the faculty of digestion; for the digestive powers require rest as well as the other organs of the body, if they are to be preserved in a healthy state. The muscular system is debilitated, and fat accumulates; flatulent colic, or gripes, is produced, which not unfrequently becomes constitutional. Nothing can be more erroneous than the antiquated impression that the purgative properties of young grass in the spring are conducive to the healthy state of the equine family. When the *modus operandi* of that description of food is explained, the supposition of its being calculated to produce beneficial effects must vanish. The young green herbage is extensively overcharged with sap and moisture, of a crude, acrimonious nature; and it exists so abundantly, that a considerable portion of it cannot be taken up by the organs destined for the secretion of urine, or by the absorbent vessels of the body. A great quantity of this superfluous fluid, therefore, passes into the intestines, and is thus discharged in a watery state. But the mischief does not terminate immediately on the subsiding of the purgative action: the absorbent vessels having been overloaded, become distended and relaxed, and some time intervenes before they resume their healthy tone, under the most judicious treatment. This is clearly exemplified by the habitual tendency which many horses exhibit of having swelled legs. Where this evil exists, any persons who entertain a doubt as to the primary cause, may readily convince themselves by investigating the course of treatment to which the animal has been subjected. Horses which are reared on wet, marshy land, are invariably afflicted with this relaxed condition of the absorbent vessels of the legs. Constant supplies of green succulent food render these defects constitutional, and the most scientific stable management is often frustrated when such animals are required to perform ordinary labour. Their legs fail, not from anatomical defects, but from the cause explained, which operates injuriously upon a structure which is naturally perfect."

The actions of aperient medicines are different from the effects produced by spring grass. Those in common use act specifically upon the liver or the bowels, and their operations, when judiciously dispensed, are under control. There are persons who contend that the purgative action of spring grass is an order of Nature—an argument against which I am strenuously opposed. According to the wise provision of Nature, a horse does not change his pasturage. Thus as the young grass springs up he culls it, together with the withered remains of the last year's supply; under which circumstances no purgative effect is produced. It is quite different when the animal is consigned from the artificial diet of hay and corn to the succulent herbage of the spring, which occasions the condition just described.

I am quite prepared to endorse the caution of the correspondent of this journal, to use discrimination in the application of blisters to the legs of hunters, as cooling remedies are much more efficacious; but that blistering, *per se*, is the occasion of grease, is an argument to which I cannot subscribe. Grease is the offspring of a vitiated condition of the blood, which produces an undue secretion of the fluid circulating in the legs, where it eventually accumulates, the absorbent vessels being inactive; but that vitiated condition of the blood proceeds from an overabundance of grass, the effects of which have been already described. It is a common complaint among cart-horses, in consequence of the quantities of grass or other green food with which they are supplied. In hunting-stables, where horses are properly summered, it is a disease unknown. As to bleeding horses when they become too fat, it is a practice quite obsolete, and never ought to be resorted to, except in cases of inflammation. Whenever a person advocates turning out a hunter for a summer's run, as the custom in olden times was designated, in order to restore the legs and feet by the agency of the damp coolness of the grass, and the gentle exercise the animal voluntarily takes, it inculcates the idea more of some pastoral poetical effusion than the result of experience, or even ordinary reflection. Pasture grounds during the dry weather of summer are hard and uneven, and the voluntary exercise a horse takes consists, when excited by any accidental cause, of a dangerous gallop; after which he very commonly cools himself in a pond or stream, where he contracts catarrhal affections, roaring, and half the " ills that *horse*flesh is heir to."

The most intelligent and able agriculturists have decided that the best system of keeping cattle is in yards or enclosures well sheltered with suitable buildings, where food is supplied to them throughout the year. If this practice be good with cattle, of which there is no doubt, it is of greater importance with horses, provided they have sufficient range for exercise, which is imperatively necessary. I am, dear sir, yours truly,

CECIL.

MR. JONAS WEBB'S RAM-LETTING.

There is a tradition of an author whose fertile brain poured forth such a lengthy list of works, that the chief difficulty which he experienced was to write new prefaces. The story smacks somewhat of a paradox; but whether it is true or not, it suits our purpose just now. Mr. Jonas Webb offered his far-famed rams for "competitive examination,"—to use one of the phrases of the day—for the thirty-third time on Thursday; and when his pleasant meetings have been reported in these columns 33 times, it is difficult, so far as description is concerned, to invest them with any very special novelty. True the rams are continually changing, but they are more or less distinguished by the same points of excellence, and attract the same notice from a large number of the same people. Then there is the *locus in quo*: that at least is the same. Then there is Mr. Webb himself; and although he is unfortunately suffering just now from gouty feet, he was on Thursday the same hospitable host and successful exhibitor as ever. Then there is the same auctioneer, the same conditions of sale, the same arrangements and pens, and the same white-haired farm-servant leading round much the same rams in much the same fashion. The same trains disgorge at the same station about the same number of passengers, who make the same critical examination of the rams, indulge in the same orthodox pokes into their wool, and form the same good-humoured ring round the same place. Finally, to make the parallel complete, very nearly the same readers will peruse these lines, and will expect much the same report.

This, however, is some consolation, as their views can be readily and fairly met: so to proceed with our narrative. The company began to arrive at Church Farm about 10 a.m.; but the attendance at first was small, and it was two in the afternoon before the usual muster was made. The morning was whiled away by the early comers with luncheon, followed by a stroll about the homestead, where some fine shorthorn bulls and cows (of some of which particulars appeared recently in the *Mark Lane Express)*, were inspected. Some ewes and lambs were also visited, and elicited a good deal of approval. But in truth the weather was too hot for much active exertion, and not a few were fain to seek shelter from the fierce rays of the sun. It might be desirable to commence the actual business of the day a little earlier; but as Mr. Rigden, with truth observed, after dinner—although not exactly in the sense here meant—farmers are as a class slow to move, and at all agricultural gatherings a good deal of delay will probably always take place. Perhaps, after all, anything like precipitation would be regarded with disfavour, as it would check a preliminary examination of the rams penned. As usual, particulars were posted of each class, indicating the numbers with which they were branded, the prices at which they were put up—that is to say, the terms on which any one desiring to hire any of them was at liberty to call them into the auctioneer's ring—and the weight of their last clip. The highest number branded was 175; but, as in former years private arrangements for letting and other circumstances reduced the actual number of rams penned to 124. Of these particulars of the nature just indicated are now appended:

No.	Put up at	Weight of wool. lbs.	oz.
FIVE YEARS OLD.			
3	6 guineas..	10	0
FOUR YEARS OLD.			
4	15 guineas.	10	4
5	8	7	8
6	15	7	8
9	5	7	4
11	9	8	0
12	50	7	12
14	37	10	0
15	18	8	0
THREE YEARS OLD.			
17	11 guineas.	9	4
18	9	6	0
20	5	8	12
21	5	8	8
22	6	9	0
23	5	8	0
24	18	10	4
25	9	10	8
26	20	9	0
27	7	7	12
28	7	8	0
31	15	8	4
32	15	7	4
33	11	9	12
35	20	8	12
37	40	8	12
38	25	9	0
39	30	6	12
40	40	8	12
41	30	8	8
42	16	8	4
43	13	9	4
44	30	9	0
45	20	9	12
47	35	8	0
TWO YEARS OLD.			
48	14 guineas.	8	12
49	6	8	4
50	10	9	0
53	11	8	4
54	11	6	8
55	10	8	0
56	10	7	0
57	11	7	12
58	11	7	12
59	13	8	12
61	10	7	8
63	8	9	0
64	18	8	4
65	6	7	0
67	13	9	8
68	7	6	8
69	10	7	12
73	9	8	0
74	11	9	0
75	18	8	0
76	35	7	12
80	14	9	8
81	12	9	0
82	12	9	0
83	9	9	4
84	13	9	0
85	14	8	0
TWO YEARS OLD (*continued*).			
86	12 guineas.	8	8
87	25	7	8
89	30	7	8
90	12	10	8
91	14	9	4
92	11	10	8
94	15	7	8
95	11	9	4
96	40	7	0
97	40	8	8
98	20	8	8
103	45	11	0
104	20	7	8
106	30	8	4
107	30	9	0
YEARLINGS.			
110	13 guineas.	7	4
111	7	7	4
113	8	6	12
114	7	6	8
116	9	7	8
118	9	7	12
119	15	8	0
120	6	7	8
121	6	7	0
123	9	8	0
124	13	9	0
126	17	8	8
128	11	8	0
130	20	8	0
131	13	7	0
132	9	7	4
134	17	8	4
135	7	8	8
136	10	8	4
137	9	8	0
138	11	10	8
139	7	7	8
140	15	8	8
141	10	6	0
143	9	8	0
146	15	8	0
147	24	7	12
148	30	7	0
149	16	7	0
150	27	8	8
151	30	8	12
152	35	7	8
154	35	8	12
156	35	9	4
157	30	7	12
158	22	7	12
159	50	7	8
160	25	8	0
161	18	8	0
162	25	8	12
163	15	10	0
164	23	7	12
168	40	8	0
169	40	8	12
170	35	7	8
171	40	8	4
174	35	7	4
175	55	7	8

At half-past two the auctioneer, Mr. J. Carter Jonas, made his appearance, with Mr. Webb, who was drawn on the ground in a chaise. Many friends pressed round to make inquiries as to his health; and the reply given, in cheery tones, was, "All right except my feet." Mr. Jonas, in commencing the business, read the conditions of sale, which reserved to Mr. Webb the right of varying the prices set upon the rams after the day of letting. Mr. Jonas also observed that it must be a matter of congratulation to the company to see so fine a show; as the rams on offer not only supported the fame of the Babraham flock, but also tended in the direction of that further progress which, under present circumstances, must also be aimed at by the agriculturists of England, through the utmost possible development of their flocks and crops. In conclusion, Mr. Jonas invited an immediate prosecution of the business of the day, and expressed his confidence that the biddings would far exceed the low reserve prices which had been fixed upon the sheep.

The competition was tolerably brisk at first, and, as usual, languished towards the close. The first ram called in was No. 12, which was put up at 50 gs. The biddings lay principally between Mr. Rigden and Mr. Waters, of Eastbourne, and they went on in a rapid *crescendo* movement till 70 gs. were reached. This proved the maximum, and Mr. Rigden desisting from the contest at this point, Mr. Waters was declared the purchaser, at, as afterwards appeared, the highest bidding realized during the day. For No. 103 there was also a sharp competition. The biddings commenced at 45 gs., and went on to 54 gs., when Mr. Rigden—to save, as he said, nodding heads—advanced at one stride to 60 gs. A further bid was made, but Mr. Rigden carried off the ram at 62 gs. The next case in which there was a struggle was for No. 154, which came into the ring at 35 gs., and advanced step by step to 56 gs., at which price it was hired by Mr. Clarke for the Duke of Richmond. Another Sussex man, Mr. Hensman, from the neighbourhood of Arundel, took off No. 175 at 58 gs., so that it will be seen that Sussex was, as usual, well represented. For No. 147, whose sire obtained the first prize at Salisbury, there were some spirited biddings, commencing with 24 gs, and ending with 38 gs., at which price the animal was secured for Lord Dacre. Mr. T. Ellman, another Sussex breeder, took one of the lots; and among the other hirers were stated to be agents of Lord Sondes, the Earl of Leicester, the Duke of Beaufort, the Earl of Yarborough, Mr. Bramston, M.P., and Mr. Adeane, M.P. Biddings were also successfully made by Mr. Eve, of Silsoe, Bedfordshire; Mr. T. Crisp, Butley Abbey, Suffolk; Mr. S. Webb; Mr. Winton, Kent; Mr. Revans; Mr. J. Smith; and other gentlemen, whose names did not transpire. Two rams were hired, and subsequently bought outright by Mr. Crisp for Baron Nathusias, a Prussian Noble. The following table exhibits the result of the letting, which closed at 4 o'clock, and also shows the order in which the rams let were called into the ring

No.	Put up at.	Let at.	No.	Put up at.	Let at.
12	50 gs.	70 gs.	32	15 gs.	20 gs.
174	35	35	123	9	9
103	45	62	146	15	15
85	14	14	35	20	20
159	50	51	156	35	37
17	11	13	134	17	20
130	20	20	104	20	20
154	35	56	18	9	9
14	37	41	138	11	11
58	11	14	24	18	22
106*	30	42	4	15	17
40	40	40	86	12	15
45	20	21	113	8	8
140	15	16	22	6	8
91	14	18	21	5	7
175	55	58	161	18	18
160	25	30	114	7	7
136	10	10	143	30	33
31	15	20	151	30	33
92	11	11	76	35	39
41	30	30	75	18	18
26	20	27	158	22	22
162	25	25	89	30	30
147	24	38	84	13	13
74	11	11	98	20	20
33	11	20	164	23	23
126	17	17	28	7	7

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* The sire of this ram was let a few years since for 197 gs.

This gives a total receipt of £1,376 11s., or an average of £25 9s. 10d. per head on the 54 rams let; and the comparative result of the day's proceedings will be seen from the following table;

Year.	No. Publicly Let.	Average price.
1852	69	£22 3 1
1853	71	22 6 3
1854	75	25 4 3
1855	77	25 15 2
1856	77	33 1 4
1857	65	27 17 7
1858	61	20 19 3
1859	54	25 9 10

The letting concluded, Mr. Webb gave the word for dinner, which was served in an adjoining marquee. In the unavoidable absence of the Earl of Hardwick, and also of his brother, the Hon. Eliot Yorke, M.P., who has acted as a kind of chairman in ordinary for some years past, Major Pemberton, late High Sheriff of Cambridgeshire, presided; and the hon. and gallant gentleman was supported by Mr. H. J. Adeane, M.P., Lord G. Osborne, Mr. C. Alderson (son of the late Mr. Baron Alderson), Mr. A. Pyne, Captain Goodwin, Captain Walton, Captain Davis, R.N., Mr. W. F. M. Copeland, Mr. R. Houblon, Captain Walton, the Rev. J. Graham, the Rev. Mr. Singleton, Mr. Luther H. Tucker (junior editor of the *United States Country Gentleman and Cultivator*), Mr. A. Dight, of Liverpool Plains, New South Wales (who is about to take out to that country some of Mr. Webb's shorthorn stock and rams, at an expenditure of from £400 to £500), Mr. G. D. Badham, Mr. S. Jonas, the gentlemen whose names have already been mentioned as hirers of rams, and nearly 200 other visitors.

The usual loyal and complimentary toasts were duly given, with copious allusions to the necessity of keeping up an effective navy, one speaker (Mr. Alderson) remarking, amid loud laughter and cheers, that if the French attempted an invasion of England, they would, like Mr. Webb's rams, be "jolly well sold."

The toast of the "Bishop and Clergy of the Diocese" called up the Rev. Mr. Singleton, who referred at great length to the question of church rates, and imputed failure to the voluntary principle. As there was evidently a dissenting element in the assembly, and the meeting had not been convened to discuss ecclesiastical politics, the rev. gentleman's observations were considered in bad taste. An amusing scene accordingly followed. The orator's well-turned periods at last elcited ominous scrapings of feet, and finally undisguised conversation. The speaker kept on; but as he eventually became completely inaudible, he was fain at last to desist, and his resumption of his seat was received with a loud ironical cheer.

The **Chairman** next gave, in complimentary terms, the "Health of the Landlord of the Soil, Mr. Adeane."

Mr. **Adeane**, in reply, expressed a hope that nothing would ever occur in the course of his political and social life which would ever deprive him of the confidence of his friends and neighbours. He had been entrusted with the task of proposing what might be called the toast of the evening, the health of the worthy host, Mr. Webb; whom he was glad to see before him, as large as life. Mr. Webb had attained the highest position in the sphere in which he had walked. He (Mr. Adeane) was most proud of having the honour of being his landlord; and he intended always to keep his career before him, as from youth to age he had followed the path of honesty, integrity, and good fellowship with all men. Mr. Webb, he was sorry to say, had not attained that high figure for any of his sheep which he had reached on former occasions, when one of his illustrious friends was more engaged in domestic duties than at present; but the company would be glad to hear that the average price per head was about 4*l.* 10s. in advance of last year. He congratulated Mr. Webb on his success, and he was delighted to hear that he was going to exhibit next week at Warwick. If a man hid his light under a bushel, he did not do so well; and in looking through the papers he (Mr. Adeane) had observed with regret that Mr. Webb's name did not appear so prominently as formerly. He was glad, however, to find that Mr. Webb was about to return to the Royal Society's exhibitions, and he was sure that the same success would attend him. He proposed the health of Mr. Jonas Webb, the best tenant landlord ever had, and also one of the best of husbands and fathers.

Mr. **Webb** stated that he had only that morning been released from his bed-room, and of course he had experienced much disappointment in not being able to receive his friends as on previous occasions. His landlord had been kind enough to make some remarks respecting him; but if such kind expressions could be applied to him, he did not know so good a plan to make a good tenant as to have a succession of good landlords. The result of the last year's letting was not quite so satisfactory as the present; but this year the result had been an advance of 4*l.* on 1858. This was most satisfactory; and he was much indebted to those who had attended, not only now, but in previous years, and taken sheep from him. One great inducement which had led him again to exhibit was that in going to Chester he found that all the breeders of Southdown sheep exhibited only 23 Southdown shearling rams. The quality was very good, but the number was too small to satisfy the public; and, acting on the advice of his friends, he intended to become an exhibitor again this year of a lot of animals which would, he believed, show great weight, independent of mutton and character. He read in a newspaper, the other day, the expediency of adhering to—

> "The good old rule, the simple plan,
> That those should keep who have the power,
> And those should get who can."

At all events he should endeavour to do so. In conclusion, Mr. Webb proposed the health of the Chairman, to whom, he observed, he was much indebted for consenting to preside, at almost a moment's notice, and for the able manner in which he had performed his duties.

The **Chairman** responded.

The Rev. J. **Graham** proposed the next toast, "Prosperity to the Royal Agricultural Society of England," and observed that the sentiment spoke for itself, as there could be no doubt that the farmers of Great Britain were greatly indebted to the society. The agricultural interest had gone through the mighty ordeal of free trade: he remembered the time when he was much alarmed on the subject, and he confessed that he was not altogether free from alarm now. At the critical period to which he referred he wrote to his late lamented friend Mr Goulburn, and pointed out what appeared to be the great difficulties of contending with Europe in regard to the produce of the land. Mr. Goulburn replied that he thought all his (Mr. Graham's) prophecies were mere chimeras; that there was no chance of any evil happening to this country from free trade, more especially from free trade in cattle; and that only a limited quantity of cattle could be brought into this country from abroad. When legislators acted upon principles so wide of the mark as they did in these days, could any one be surprised at the depression which had taken place, and which would have continued to this day but for the Crimean war? Could it be a matter of astonishment that agriculturists should feel themselves a little aggrieved at persons legislating upon principles which had proved so utterly untrue? He was the other day with a friend in Norfolk, who had a relative on the Elbe, and he learnt that the King of Prussia (who knew what he was about, and who was most warmly interested in the agriculture of that country) had selected a gentleman who could carry over to Prussia English breeds of sheep and cattle, and thereby form the nucleus of a grand agricultural system in Prussia. The gentleman who was selected was a great bull breeder of his day, Mr. Bates; and he took over Leicesters, some of Mr. Webb's, and other descriptions of sheep and cattle. He was granted a large extent of land on the borders of the Elbe, of which he had a lease of 37 years, and great and various advantages were held out to him by the King of Prussia. In the first instance he laboured under great difficulties; the peasantry looked with discontent upon the stock he had introduced, and positively until he sent for a herdsman from Durham he never could raise an English calf in Prussia. He had now, however, established himself, and had put a little of Mr. Webb's blood into the stock; but he had never dared to send an animal for the London market until about a month or six weeks since, when he forwarded 125 sheep. In the accounts which he had sent home he stated that he was perfectly satisfied with the result of his experiment, and that he found from the best possible calculations, that it cost only 1d. per lb. to send the sheep to London. If, therefore, the King of Prussia had begun in this way, and if immense numbers of animals could be sent at so cheap a rate—by rail to Hamburg, and from Hamburgh to London by ship—the farmers of England stood in need of every possible improvement in agriculture (Hear, hear, and some interruption from a rather disorderly section at the lower end of the tent). In giving the toast Mr. Graham observed, in conclusion, that he was requested to couple with it the name of a gentleman who had done much for the agriculture of the country; he referred to Mr. Rigden, of Sussex.

Mr. Rigden, in reply, said he thought all present would agree with him that farmers had no right to complain of their present position. It was true that wheat was not paying so good a price, but he thought this was in some degree owing to the large crop, and it was proverbial that farmers never grumbled (loud laughter). Perhaps, now that he was on his legs, he might be allowed to refer to the position which Mr. Jonas Webb held as a breeder of sheep. Mr. Adeane had expressed his regret that Mr. Webb had set his candle under a bushel; and whenever Mr. Webb hid his candle, he (Mr. Rigden) would show his light. Whenever Mr. Webb was not an exhibitor, he (Mr. Rigden) was a successful candidate, and consequently he had a great interest in keeping him out of the field (laughter); but if Mr. Webb exhibited this year the best sheep, which he believed he would, he hoped he would win. It had been said that farmers were slow to move, but it would be difficult to produce such a pen of sheep as Mr. Webb had shown during the day. If the richest man in the world—if the Rothschilds were to buy up Mr. Webb's stock, they would not be able that time twelvemonth to show what had been witnessed during the day. The management of the Babraham flock was the work of a master-mind; Mr. Webb had no equal in England, and he did not believe he was likely to have one in his day and generation.

Mr. Webb gave, "The healths of our friends across the Atlantic," coupling with the toast the name of Mr. L. H. Tucker, on the staff of one of the agricultural journals of the United States. Mr. Webb added that he had received an order to send a ram to the United States at 150 guineas.

Mr. Tucker said, in two respects Old England—for they were still fond of calling her Old England across the water—was so famous, viz., for her hospitality and for her agriculture; that while he was sure that neither could excel the other, he was equally sure that it would be difficult to find elsewhere an example of both similar to that which had been witnessed during the day. And when he saw so many gentlemen connected with the pursuit of agriculture, not as a recreation or as a means of spending money, but with something of that energy which had placed British commerce and British manufactures in their present proud pre-eminence, he could not but appreciate the solid basis on which English institutions stood, and the services which had been performed for agriculture by such gentlemen as Mr. Webb. American traders and merchants, when they wished to secure the best, had recourse to the achievements of British genius and the excellence of British products; and American farmers acted on the same principle. The prodigies which had been performed in the improvement of the sheep and swine, and the creation of such a breed as shorthorns in cattle, were no less triumphs of genius; and for whatever excellence Americans could boast in their show yards, for that kind of animals capable of producing the most beef, mutton, and pork at the least expense of time and food, he most willingly and cordially acknowledged their indebtedness to English breeders, among whom he was most happy to find himself that day, and many of whose names were known all the way from France to Australia, as well as on the banks of the Hudson river where he lived, and the still more distant and almost boundless prairies of the Western States. He might conclude by expressing the pleasure with which he had observed that Mr. Cobden—who had just returned from a journey in America, and whom he had the pleasure of meeting there last spring—in his first speech after landing at Liverpool gave the fullest assurances derived from his own personal observation and knowledge, that the people of America still looked back to England—although perhaps as a grown-up and somewhat wayward boy might look back to the home of his fathers—with the deepest sympathy in all the progress she could make, with the utmost confidence in the good will of her inhabitants, and with the proudest anticipations for her future no less than for their own.

Mr. Markby, jun., of Duxford, proposed the healths of Mrs. Webb and family (Applause).

Mr. Webb responded, and proposed the health Mr. John Waters, the hirer of the highest priced tup.

Mr. Waters, in responding, said the county of Sussex was indebted to Mr. Webb for bringing Southdown sheep first away from their home, and then carrying them to such perfection, that Sussex men found it desirable to hire them and take them back. Although there might not be much credit due to him for hiring the highest priced ram—perhaps there might be many better sheep at a lower price—he was glad to find that Sussex men had obtained six of the best lots to go back to that county.

The Chairman gave the last toast on the list, "Our next merry meeting," and the meeting shortly afterwards broke up, some of the company betaking themselves to tea and coffee, others to cigars and meerschaums, and some at once seeking their homes.

THE ENGLISH RACE HORSE.—In Great Britain, from the highly cultivated knowledge of the mechanical structure of living bodies, with the junction of best shapes—although, but for racing, this knowledge would have been comparatively in its infancy—the horse has arrived at the highest state of perfection of which his nature is capable; and in whatever country, and in whatever climate, his racing powers are put to the test, he has scarcely found a rival, excepting under very disadvantageous circumstances. It is true his *lasting* qualities were doubted, and he was challenged to rebut the charge, and the following was the result:—On the 4th of August, 1825, two second-rate English racers, Sharper and Mina, contended against the most celebrated Cossack horses from the Don, the Black Sea, and the Ural, in a race of the cruel length of 47 miles. At starting, Sharper and Mina ran away with their riders more than a mile, and up a steep hill, when the latter horse broke down, and pulled up. Half the distance was run in an hour and forty minutes. In the last half, only one of the Cossack horses was able to contend with Sharper, who, notwithstanding that every foul advantage was taken by changing the weight, and dragging along his opponent by a rope, won his race in gallant style, performing the distance in two hours and forty-eight minutes. At starting, the English horses carried three stone more weight than the Cossacks; and, during the latter half of the race, the one Cossack who remained in it was ridden by a mere child. Every trial over the desert, no matter what the distance, during 1826-55, between English and eastern horses, has been attended with precisely the same results.—*From the Encyclopædia Britannica* (*New Edition*).

THE FUTURE COURSE OF THE TRADE OF THE NORTH AMERICAN WATERCOURSE.

No. VI.

Such are the proposals for improving the water communications between Chicago and the east. The Americans support the building of a canal from the Georgian Bay to a Canadian port, convenient for the continued prosecution of the Buffalo and Oswego trade; and discourage the building of a canal between Lake Nippissing and the Ottawa river, as then Buffalo and Oswego interests would probably be destroyed. Toronto, Peterborough, and some other workhouse cities, on the shore of Lake Ontario, support the interested American scheme, that local purposes may be served. Every swindler in the sale of public or private lands is aware that the canal would increase the market value of his miserable wooden lots and farms a thousand-fold, and he backs the project, although feeling that in so doing he sells his country's rights for a mess of pottage.

But for years to come, the best concocted water transport scheme, whether pure American or pure Canadian, or a combination of the two, is not likely to be received with favour on the English Stock Exchange, and as a consequence will be received with coldness in New York. Even the bait of grants of lands is old and worn out, and will no longer influence a single sale of stock; but every project will be judged upon its merits only, and what in future will recommend a new railroad or canal to facilitate transportation from west to east, when the tendency of the course of western trade lies another way.

Before leaving this part of the subject, it may be well to advert to direct western trans-atlantic trade more in detail than has yet been done.

The Dean Richmond, from Chicago to Liverpool, made the voyage on the joint account of several leading Chicago merchants, and the nominal freight was equal to 15d. a bushel for wheat. When the cargo was landed at Liverpool, the quantity damaged on the voyage was considerable, but, notwithstanding, the net profit, at the nominal freight named, was £400. The vessel was then sold at a price which it was more profitable to take than to perform the outward Chicago voyage, but it was considerably under the lake valuation. Seeing that the parties, who were the chief sharers in the venture, have not repeated the operation, nor interested themselves further in the trade, although perfectly able to do so, both in point of influence and means, the Dean Richmond's voyage may be regarded in the light of a commercial failure. This may appear incredible in England, as it was understood that a high price was paid for the vessel; but when it is considered that carpenters' wages, high as they are in England, are still higher in the interior of America—expressed in money they are always twice and sometimes even thrice the English rate—the case shows itself in its proper light. Not only is the mere labour of building higher, but every article of outfit, in Chicago, is at least four times the regular English market price. It would therefore be within the mark to say that the lake value of the Dean Richmond was twice the amount realized on the sale.

The season following that of the voyage of the Dean Richmond gave early promise of the establishment of direct trade on a firm basis. Other parties entered the field, and a ship belonging to Hamilton, Canada West, was chartered for a round voyage, to Queenstown, for orders, and back to Chicago. Other vessels were also wanted, to be taken up for the trade, and before the opening of the navigation, orders were on hand for over fifteen general cargoes of wheat, flour, and corn, and beef, bacon, tallow, lard, and hides. Some of these orders were from Glasgow, some from Hull, and some from London, and all in the usual way. Unfortunately, when the navigation opened, an unexpected speculative advance took place in the Chicago market, and the English limits were exceeded in every case. To keep faith with all parties, a cargo of hides was purchased at a cost price of £25,000; and delay taking place in the selling of so much exchange, the shippers of the hides began to unload the vessel, and in a moment the Chicago trans-atlantic trade fell to the ground.

It is worthy of remark that every obstacle was thrown in the way of the Hamilton vessel being sent to sea. Every one was abstractly interested in her being sent away; but practically, every one was determined to make as much money of her as he could. When the vessel came to Chicago, no loading-berth could be had at the usual price; and one party asked the modest sum of five hundred dollars, or one hundred pounds, for the privilege of one week's loading up; and ultimately, forty pounds was agreed to be paid. In the other arrangements, of a minor kind, the same obstructive selfishness was encountered at every step; and as we shall see presently, those interested in the subsequent vessel, the Madeira Pet, were treated in the same way.

The experience of the Hamilton vessel, however, brought out the real difficulties, in the way of operating interior trade; and now that these are fully known, provision can be made in future: but the consideration of them comes within the subject of the following article.

The venture of the Medeira Pet was undertaken by parties in New Brunswick, and controlled by a New York firm

The vessel reached Chicago after a somewhat tedious voyage of eighty days; and the members of the Board of Trade cheered lustily from the pier as she was being moored. The cargo was ill assorted for the market, consisting of rough iron, rougher hardware, and the roughest crockery, instead of London porter, Scotch ales, and Scotch and Irish whisky. Still, it was a cargo of staple articles, and would have made no sensible addition to existing wholesale stocks; but after every effort on the part of the city trade to cheapen everything below even English producing cost, the bulk of the little schooner's cargo has been suffered to remain unsold nearly two years after the time of import. Chicago and the West are therefore evidently not yet in a state to appreciate the benefits of direct transatlantic trade.

Bad luck unfortunately attended the Madeira Pet also on the homeward voyage, with a cargo of hides and staves. The parties to whom she was consigned became insolvent, and, so far, the loss on the round voyage exceeds £3,000; and unless the Chicago people pay a fair price for the remaining outward cargo, the loss will be all but doubled.

Since these unavailing efforts, the Quebec and Liverpool ocean steamers have offered to carry Chicago produce on easy terms; and the opinion has gained ground every day, that, if direct trade between the West and Europe is to be carried on by the St. Lawrence river, it must, in view of the tedious voyage up and down the lakes by sailing vessels, be done in the first instance by propellers on the lakes, with transhipment at Montreal.

The following is the combined freight tariff of the Grand Trunk Railroad and the ocean steamers, season 1858:—

THROUGH FREIGHTS FROM CHICAGO TO LIVERPOOL.

	s.	d.
1. Flour per barrel, by propeller to Collingwood, thence per rail to Montreal, and ocean steamer to Liverpool, time, twenty to twenty-five days	6	8
2. Flour per barrel, by rail to Montreal, thence per ocean steamer to Liverpool, time, fifteen to twenty days	7	6
3. Grain, in bags, per 60lbs., by propeller to Collingwood, thence per rail to Montreal, and ocean steamer to Liverpool, time, twenty to twenty-five days ...	1	10½
4. Grain, in bags, per 60lbs., by rail to Montreal, thence per ocean steamer to Liverpool, time, fifteen to twenty days	2	3½

The following were the average rates of wheat freight per bushel from Chicago to Buffalo and Oswego, season 1857:—

To Buffalo.	To Oswego.
Average, 2½d. per 60lbs.	4d. per 60lbs.
Range from 6¼d. to 1½d. per 60lbs.	6¼d. to 3d. per 60lbs.

The rate to Montreal is usually 2½d. per bushel in excess of the Oswego freight.

The following was the average rate of wheat freight per bushel from Buffalo to New York, season 1857:—

TO NEW YORK.

Average 6½d. per 60lbs. Range from 7¼d. to 5¼d. per 60lbs.

The following was the general railroad tariff from Chicago to New York, season 1858:—

	s.	d.
1. Grain, in bags, per 60lbs., time, ten to twenty days	2	0
2. Hides, &c., per 100lbs, time, ten to twenty days	2	11
3. Flour per barrel, time, ten to twenty days	6	5½

Sometimes the railroad rates are much higher; and the railroads carrying to New York from Chicago are the Pittsburgh and Fort Wayne, the Michigan Central, and the Michigan Southern.

With these figures drawn from official sources, it is not necessary to say a single word further as to the chances of eastern railroads coming seriously into competition with steam or sailing vessels, in grain transportation to the seaboard. The following is the closest approximation to average rates, season 1858:—

	By Water.	By Rail.
To Montreal:—		
Wheat, per 60lbs.,	8d.	1s. 3d.
Flour, per barrel,	2s. 0d.	3s. 4d.
To New York:—		
Wheat, per 60lbs.,	9d.	2s. 0d.
Flour, per barrel,	1s. 10d.	6s. 5d.

From Chicago to Montreal wheat transportation, by railroad, is on an average ninety-four per cent. higher than by water, and flour eighty-four per cent. From Chicago to New York wheat transportation, by railroad, is on an average one hundred and fifty per cent. higher than by water, and flour one hundred and seventy-five per cent. The only difference in the cost of transportation between Chicago and New York, and between Chicago and Montreal, is in flour, which is carried to New York at a rate equal to eight per cent. less; but according to Mr. Young's showing, the ocean freight from Montreal is one hundred per cent. higher than from New York. That one hundred per cent. may be said, therefore, to form the disadvantage of the St. Lawrence route; and it must be plain that, with much less disadvantage than that represented by one hundred per cent. more ocean freight, as it does at present, trade, in future, will give a decided preference to the Erie canal, either by the Buffalo or Oswego branch.

Thus much for the St. Lawrence water-course, and the prospects of western trade taking the route of the Erie Canal, or of Montreal and the Caughnawagna. At the moment trade naturally takes the former, and avoids the latter; and while Canadians, year after yaar, are discussing projects, the Americans steadily carry forward the enlargement of the Erie Canal, and improve the means of transport. A little more persistence in these different courses, and the Canadians will at least be ten years behind their neighbours; and the St. Lawrence Canals, which cost so much, will cease practically to possess utility and a market value. Should Canada, then, by some superhuman effort, open the Ottawa Channel from the Georgian Bay, and the Caughnawagna, from Montreal, it is within the limits of possibility that improvements in steam navigation, on the Erie Canal, will still secure to the Americans an equal measure of advantage to that now enjoyed; and, if steam fails to do so, the interest of the canal debt will assuredly be paid by a tax on the people of New York; and Erie Canal tolls cease for ever. To this alternative the public men of New York State are prepared to go; and it is not too much to say, that the financial state of Canada would not warrant such a course, in reference to public works; and such being the case, Canada would still continue to wage an unequal contest. The Erie Canal, in a commercial point of view, has done more towards the growth of New York city, than any other undertaking that can be named; and will not, therefore, be given up without a struggle; and a struggle between New York and Canada would end inevitably in the discomfiture of the latter.

But it is quite possible, as has been shown already, to divert the bulk of western trade into another channel than that of either the Erie Canal, or the Montreal and Caughnawagna; and against that competition the whole power of New York State and City would not prevail. That competing channel would be open at the close of harvest, when an inclement season binds, with an iron grasp, the waters of New York and

Canada; and the produce upon which the Erie Canal depends would be moved, in anticipation, to the markets of New York and Europe. Against such a competition, not even the enlargement of the Erie Canal, nor the abrogation of its tolls, nor the wealth of New York City, would succeed; and that competition, New York and Canada, in the nature of things, have to face at an early day.

Recurring to the previous figures of distance between Chicago and New York and Montreal by water, and averaging the statements of the different authorities, we have the following on the one hand, as the navigable distance from Chicago to New York and Montreal; and on the other hand, the navigable distance from St. Louis and Cairo to New Orleans.

I. Chicago to New York, 1487 miles. (Erie Canal distance 353 miles.)	III. St. Louis to New Orleans, 1212 miles. (No canal.)
II. Chicago to Montreal, 1364 miles. (Canal distance 75 miles.)	IV. Cairo to NewOrleans, 1040 miles. (No canal.)

The railroad distance from Chicago to New York and Montreal may also be stated, to make the comparison complete:

	Miles.
I. From Chicago to New York, by the Michigan Central, the Great Western of Canada, the New York Central, and the Hudson River Railroads	950
II. From Chicago to New York, by the Michigan Southern, the Buffalo, Cleveland, and Toledo, the New York Central, and the Hudson River Railroads............	963
III. From Chicago to New York, by the Michigan Central, the Great Western of Canada, and the New York and Erie Railroads..........................	960
IV. From Chicago to New York, by the Michagan Southern, the Buffalo, Cleveland, and Toledo, and the New York and Erie Railroads................	960
V. From Chicago to New York, by the Pittsburgh and Forthayne, the Pennsylvannia Central, and the Camden and Amboy Railroads..........................	920
Average....	951

As near as can be, the cost of steam transportation on the lakes, on an average of years, is £2 3s. 4d. per ton from Chicago to New York, if the whole distance were open water navigation, without canals, the average distance being 1487 miles.

As near as can be, the cost of canal navigation on the Erie canal on an average of years is £4 19s. 2d. per ton from Chicago to New York, if the navigation were all canal, the average distance being 1,487 miles. And the average cost of transportation on the New York Central Railroad, for the past three years, has been 1¼d. per ton per mile; say £4 19s 1d. per ton from Chicago to New York, the average distance being 951 miles.

	Per ton.		
1. All open water steam navigation ...	£2	3	4
2. All canal navigation..............	4	19	2
3. All railroad transit	4	19	1

But the distance between Chicago and New York is part canal and part steamboat navigation; so that the actual computation, leaving out the difference of transportation on the Hudson, would be—

	£	s.	d.
353 miles canal at 4-5ths of a penny..	1	3	6½
1,147 miles lake &c at 7-20ths of a penny	1	13	5½
Actual average cost per ton by water	£2	17	0

The comparison then is the following:

Average cost of transportation by railroad from Chicago to New York, per ton	4	19	1
Average cost of water transportation by canal and lakes, &c., from Chicago to New York, per ton	2	17	0
Difference against railroad, per ton....	£2	2	1

Adopting these official calculations, which are the actual average charge, and therefore admitting of no dispute, we have the following as the comparison between the transportation from St. Louis to New Orleans on the one hand, and between Chicago and New York on the other:

	£	s.	d.
St. Louis to New Orleans, 1,212 miles at 7-20ths of a penny..............	1	15	4
Chicago to New York	2	17	0
Difference against the Erie Canal route	£1	1	8

This difference of £1 1s. 8d. against the Erie Canal route to the seaboard, and in favour of the Mississippi route to the seaboard, leaves a flour freight from New Orleans to Liverpool of 2s. 2d. per barrel; and thereby establishes the statement previously made, that produce sent by the Mississippi route could be landed in Liverpool or London on precisely the same transportation charges as are incurred in the present movement of produce from Chicago to New York.

But it may be alleged that the cost of transportation to St. Louis should be included in the calculation; but when that allegation is made, it is obviously forgotten that every bushel of grain received at the Chicago elevators has borne a less or greater transportation charge, and so long as that transportation charge is not included in the calculation from Chicago to New York, it would be unequal to include the corresponding charge in the calculation from St. Louis to New Orleans. And further, it has been shown that Chicago grain is not grown on the shores of Lake Michigan, but on the Mississippi river bottoms; and therefore, the bulk of that grain is carried by railroads across the whole territory of Illinois; while if the movement were made down the river to St. Louis, all the advantages of water communication would be secured.

But not only is grain transported from the extremity of Illinois to Chicago, but a large proportion of the crop of Iowa finds its way also; and the magnitude of the preliminary railroad charge, antecedent to the warehousing in the Chicago elevators, will be realized when it is stated that the cost from Iowa City to Chicago, a distance of 242 miles, is 10d. per bushel of sixty pounds; while the summer freight, per bushel, from St. Louis to New Orleans is sometimes as low as 0¾d., and 10d. per barrel of flour. Such being the case ,not only may western produce be removed chesper to Liverpool by the Mississippi to New Orleans, than to New York by the Erie Canal, but sometimes, at least, the charges paid for the movement of produce from parts of Iowa to Chicago would suffice to defray every charge from the same parts of Iowa to Liverpool.

The general Illinois railroad tariff for wheat transportation is 4½d. per bushel per 100 miles; and the general transportation charge on the Illinois and Michigan Canal is 3¼d. per bushel per 100 miles; while the general transportation charge on the Illinois River is only 7-10ths of a halfpenny per bushel per hundred miles.

Illinois wheat transportation charge per bushel of 60lbs.:

By Railroad, per 100 miles......		4½d.
By Canal,	,, ...	3¼d.
By Steamer,	,, ...	7-10ths of a penny.

It is impossible to look at these figures without being assured of the futility of attempting in the future to continue the course of western trade in the channel of the lakes and New York canals, or the channel of the St. Lawrence river. It cannot be done; and the sooner trade takes the new and better channel, the sooner will the Government of the United States undertake those improvements in the navigation which are imperatively required. And it is important to observe that the required improvements in the navigation of the Mississippi and Ohio rivers come within the proper province of the Federal Government; and whatever the amount of outlay, no tolls nor imposts, under the circumstances, can ever be imposed. As the river is at present, it is available for an indefinite extension of the transport trade; but a trifling outlay would not only remove peculiar hazards, but render it available for the inward and outward passage of sailing vessels; and these could penetrate as high as St. Louis, or much higher if required.

But in addition to the advantages of cheaper transportation presented by the Mississippi route, there is, likewise, the important advantage of open water throughout the year. In open winter weather there is no ice, and therefore no obstruction, as high up as St. Louis; while in the severest weather there is always open water as high up as Cairo. At that period, therefore, when New York and Canadian buyers avoid western markets, the European buyers could step in, and buy on the most advantageous terms; and be wholly independent of the season. Every barrel of flour or bag of wheat purchased could be moved without delay to New Orleans, and from that port to Europe.

The following are the advertised rates of the Illinois Central Railroad, for the transportation of produce *from Chicago to New Orleans:*

	£	s.	d.
I. Grain, per 60lbs., from Chicago to Cairo, by rail, thence per steam on the Mississippi river to New Orleans	0	1	3
II. Bacon, hard beef, &c., per 100lbs., from Chicago to Cairo by rail, thence per steam on the Mississippi to New Orleans...............	0	2	1

Time on this route, from five to ten days between Chicago and New Orleans.

The publication of such a tariff admits of this one inference: that it is even practicable, or—what is the same thing—profitable, to move produce from Chicago to New Orleans; and if produce, after having borne transportation charges to Chicago, can bear a repetition of those charges from Chicago to Cairo, how much more profitable *a fortiori* direct trade from the upper Mississippi to New Orleans would be! But probably the Illinois Central Railroad Company, in publishing that tariff, thought only of competing with eastern railroads in the transportation of eastern-going produce during the winter season. Be that as it may, it is not the less a striking corroboration of the soundness of the foregoing views, now for the first time advanced, either in the United States or Europe.

In the foregoing, the following are the main points which have been established: British Columbia, the territory of the Saskatchewan, and Lake Superior are, in a grain-producing view, entirely worthless; and it will be impossible to induce settlement so long as lands are open for entry in Illinois, Wisconsin, Iowa, and Minnesota. During periods of high prices—extremely high prices—produce could be moved from Lake Winnipeg with a bare profit; but with wheat in England at 40s., and under, per imperial quarter, the whole price realized for Saskatchewan and Red River wheat would fall short of the producing cost, and the transportation charge. Such being the case, settlement would only end in the impoverishment and unhappiness of the people; and it is questionable whether, even in periods of high prices, the long interval which would invariably intervene before the produce could be brought to market would act as a prohibition altogether. But this other important principle will be brought out fully in the following article; and it will there be perceived that the produce trade, from the Saskatchewan to the seaboard, would generally be nothing more nor less than gambling—a pursuit at variance with all ideas of successful farming.

Closely connected with the subject of the settlement of the Saskatchewan, is the question of the Pacific Railroad; and in view of the present worthlessness of the whole district, such a railroad would necessarily be worthless also.

The fallacy involved in putting forward new schemes of connecting Chicago with the seaboard, on the principle of distance, and not on the principles of necessity and cost, has been adverted to; and the peculiar fitness of the St. Lawrence channel questioned. On this last point, it is asked whether, if Canada had been included in the national domain of the United States, and Louisiana had been the purchase of Great Britain, and the British Government had done for the Mississippi what it did for the St. Lawrence River, whether, under these circumstances, the Mississippi would not now occupy that place in the favour of the public which the St. Lawrence channel does. With respect to the distance test, it is obvious that the public are indifferent whether their property is carried on a bee line or on the circle, so long as it is carried expeditiously and cheap; and it is not less obvious, that if a new channel, by virtue, we shall say, of less construction cost, reduces the transportation charge from one point to another, the other existing channels adopt the same tariff, and, as before, divide the trade. The discrepancies pointed out in the official statements, of the mere distance from one point to another, will induce public distrust in all interested American reports that may be made hereafter.

The characteristics of the St. Lawrence channel are then adverted to at length, and the various projects pointed out, and made the subject of remark. The reasons of American sympathy to the Georgian Bay Canal, and of American hostility to the opening of the Ottawa River into Georgian Bay, then follow, and place the whole question to the English capitalist in a new and striking point of view.

The case of the lake shipowner follows incidentally, and is shown to be strong enough to justify the strongest possible remonstrances from the British Government.

The question of transportation by railroads, and canals, and steam water-courses, is finally exhausted in placing the whole question of the future course of western trade before the public; and, as the figures are reliable, the results have an important bearing on the present and future opening up of India. The result of the inquiry is substantially this: that, sooner or later, the whole western carrying trade will pass into the Mississippi channel; that Montreal stands in an immensely inferior position to New York; and that New York stands in a still more inferior position to New Orleans. The building of railroads and canals to connect Chicago with New York and Montreal is, therefore, a profound mistake; and all hope of such securities improving with the times is delusive in the extreme.

THE NEW-MOWN HAY.

BY PARK BENJAMIN.

Talk not to me of southern bowers,
Of odours breathed from tropic flowers,
Or spice trees after rain;
But of those sweets that freely flow
When June's fond breezes stir the low
Grass, heaped along the plain.

This morning stood the verdant spears,
All wet with diamond dew—the tears
By night serenely shed;
This evening like an army slain,
They number the pacific plain
With their fast-fading dead.

And where they fell, and all around,
Such perfumes in the air abound
As if long-hidden hives
Of sudden richness were unsealed,
When on the freshly trodden field
They yielded up their lives.

In idle mood I love to pass
These ruins of the crowded grass;
Or listlessly to lie,
Inhaling these delicious scents
Crushed from those downcast, verdurous tents,
Beneath a sunset sky.

It is a pure delight, which they
Who dwell in cities, far away
From rural scenes so fair,
Can never know in lighted rooms,
Pervaded by exotic blooms—
This taste of natural air.

This air, so softened by the breath
Exhaled and wafted from the death
Of herbs that simply bloom,
And, scarcely noted, like the best
Dear friends with whom this world is blest,
Await the common doom—

And leave behind such sweet regret
As in our hearts is living yet,
Though heroes pass away—
Talk not to me of southern bowers,
Or odours breathed from tropic flowers,
But of the new-mown hay.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a weekly Council held Wednesday, June 29, present Col. Challoner, Trustee, in the chair, the names of candidates for election were read. Lord Feversham, the Hon. Col. Hood, the Hon. W. G. Cavendish, M.P., Sir J. V. B. Johnstone, Bart., M.P., Sir E. Kerrison, Bart., M.P., Mr. J. Raymond Barker, Mr. Thomas Raymond Barker, Mr. Beale Browne, Mr. Caird, M.P., Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Humberstone, M.P., Professor Simonds, Mr. S. Thompson, Mr. T. Burch Western, Mr. Wilkinson, Mr. H. Wilson, of Stowlangtoft Hall, and Mr. Wood, of Hanger Hill.—

Dr. Vöelcker submitted to the Council the following analysis of a Mangel Wurzel which was grown in 1857, and has been kept for nearly two years in an apparently sound condition :—

Detailed Composition.

	In natural state.	Calculated dry.
Water	92.25	..
*Soluble proteine compounds	.97	12.51
Sugar, gum, and pectin	4.08	52.67
Soluble inorganic salts	1.23	15.87
†Insoluble proteine compounds	.16	2.06
Woody fibre (cellulose)	1.18	15.22
Insoluble mineral matter	.13	1.67
	100.00	100.00
*Containing nitrogen	.155	2.00
†Containing nitrogen	.025	.32
Total nitrogen	.180	2.32

The amount of water in this root it will be noticed is as large as in common White Turnips. It is much more considerable than in good Mangels, in which there is an average of 88 to 89 per cent. of water. The proportion of mineral matter in this root is larger than in good roots. Nearly the whole of the mineral matter consists of soluble salts, and more than one-half of these was found to be chloride of sodium or common salt. It appears, therefore, that salt was largely employed in growing the Mangels of which a specimen was analyzed. The proportion of nitrogen in the root is also larger than the average. The legitimate conclusion which may be deduced from the preceding results and observations is that this Mangel, although apparently sound, has undergone some changes which have deteriorated its feeding qualities. Dr. Voelcker's report explained in what manner this deterioration may have taken place, and remarked that it must be a matter of considerable interest to practical men to know how long Mangels can be stored without suffering injury, and what time of the year stored roots had acquired their maximum feeding properties. He also suggested that the large quantity of salt in the Mangel Wurzel which kept apparently sound for two years may have had its share in preserving it for so long a time, and expressed the opinion that the character of the manures used for growing Mangels had a material influence on their composition, a circumstance which naturally must affect their keeping qualities. Dr. Voelcker stated in conclusion—" In the absence of precise information and experiments, I abstain from further speculating on this subject, and allude to it mainly for the purpose of showing how desirable it is that the whole question should be thoroughly investigated. This can alone be done properly by a systematic series of practical and analytical experiments."

Mr. Fisher Hobbs suggested that in publishing Dr. Voelcker's report in a condensed form it should be stated that the analysis was of one small root only, which had been preserved two years, and that it could hardly be taken as a fair average example of the keeping properties of a whole crop.

A communication was read by Mr. Charles Fulbrook, of Dallington, Hurst Green, giving the result of his investigations of the laws governing the wet and dry seasons occasionally experienced in this country. On the motion of Lord Feversham, seconded by the Hon. Wm. Cavendish, this communication was referred to the Journal Committee, and the thanks of the Council were ordered to be conveyed to Mr. Fulbrook.

M. Tisserand, Inspector of the Imperial Farms in France, transmitted to the Council programmes of the special international competition of reaping machines, to take place at the Imperial Farm of Fouilleuse, near St. Cloud, between July 20th and 25th next. The certificates of entry to be sent by exhibitors to his Excellency the Minister of Agriculture, 78 *bis*, Rue de Varennes, Paris, on or before July 10th.

The following communications were also received from Mr. Chas. W. Hamilton : A Schedule of Queries issued by the Royal Dublin Society respecting the Condition of Farm Labourers ; the Journal of the Agricultural Society of Alger, and the Journal of the Central Agricultural Society of Belgium, for all of which the thanks of the Council were ordered.

Mr. H. Tucker, from the New York States Agricultural Society, presented a letter deputing him to attend on behalf of that Society at the Warwick Show. The Chairman assured Mr. Tucker that the officers of the Society would afford him every facility in their power to enable him to inspect the trials and general exhibition.

The Council then adjourned to the Monthly Council on July 6th.

At a Monthly Council, held Wednesday, July 6, 1859—present, his Grace the Duke of Marlborough, President, in the chair ; Lord Camoys ; Lord Walsingham ; Lord Powis ; Lord Feversham ; Lord Leigh ; Lord Portman ; Sir J. V. B. Johnstone, Bart., M.P. ; Sir E. Kerrison, Bart., M.P. ; Sir J. V. Shelley, Bart., M.P. ; the Hon. Colonel Hood ; the Hon. W. G. Cavendish, M.P. ; Mr. Amos ; Mr. Raymond Barker ;

Mr. Hodgson Barrow, M.P.; Mr. Barthropp; Mr. Bramston, M.P.; Mr. Brandreth; Colonel Challoner; Mr. Exall; Mr. Foley, M.P.; Mr. Brandreth Gibbs; Mr. Fisher Hobbs; Mr. Kinders; Mr. Knight, M.P.; Mr. Milward; Mr. Pain; Mr. Shuttleworth; Mr. Banks Stanhope, M.P.; Mr. H. S. Thompson; Mr. Torr; Mr. T. Burch Western; and Mr. Wilson, of Stowlangtoft—the following new members were elected:

Ashton, George F., Wheelock House, Sandbach.
Bacon, Rev. Hugh, Baxterley Rectory, Atherstone.
Bourne, James, Basford Hall, Nantwich.
Browne, Thomas Browne, Privy Council Office, Whitehall.
Butt, Henry, Kemerton, Tewkesbury.
Carter, James, Don Farm, Botley, Staffs.
Coomer, Thomas, Basford, Nantwich.
Cooper, Edmund, Henley-in-Arden.
De Vitre, Henry D., Purchase Manor, Sussex.
Duckworth, Russell, Dirleton, Drem, N.B.
Greene, Harry Arthur. Bythorne, Thrapstone.
Hammerton, Charles, Princethorp, Warwick.
Hunt, Thomas, Thornington, Coldstream.
Higginbotham, Samuel, Castle-Milk, Glasgow.
Home, James R., Church Stretton, Salop.
Lea, Joseph, Grove Mount, Northwich.
Lilly, W. Mence, Money Hill Hall, King's Norton.
Marsh, Thomas, The Heamies, Stone, Staffs.
Preston, W. Scott, Leigh-Chulmleigh, Devon.
Simpson, Alexander, Bridgnorth.
Smith, Apsley, Buxerby Hall, Atherstone.
West, James Roberts, Alycot Park, Stratford-on-Avon.
Yorke, T. E., Hilton Place, Hellifield, Leeds.

The usual monthly report of the Finance Committee was received, with the following addition:—"The members of the Finance Committee also beg to state to the Council that they desire to set the Committee appointed to entertain and report upon the rearrangement of the system of keeping the accounts of the Society perfectly free, by the tender of their resignation."

On the motion of Lord Portman, seconded by Mr. Torr, the above resignation was accepted.

On the motion of Mr. Thompson, seconded by Lord Feversham, the thanks of the Council were voted to the Finance Committee for their past services. On the motion of Mr. Torr, seconded by Mr. Shuttleworth, the Finance Committee were requested to continue to hold office until the new committee be appointed.

Mr. Thompson, chairman of the Journal Committee, reported:—

1. That in Class III., Essay on Steam Cultivation, the prize of £25 is awarded to the Essay bearing the motto "Faint, but pursuing;" and on the seal being broken, Mr. J. Algernon Clarke, of Long Sutton, was declared the author.
2. That in Class VII. none of the Essays are considered worthy of the prize.
3. The following list of subjects for Prize Essays for 1860 is recommended to the Council:—

	£	s.	d.
I. Agriculture of Berkshire............	50	0	0
II. On the best period of the rotation, and the best time for applying the manure of the farm	20	0	0
III. Alterations advisable in farm management, in land of different qualities, by low price of grain and high price of meat.........................	10	0	0
IV. Late improvements in dairy practice..	10	0	0
V. Proper office of straw in a farm......	10	0	0
VI. Amount of capital required for the profitable occupation of a farm........	10	0	0
VII. On the condition of seed-bed best suited to the various agricultural crops....	£10	0	0
VIII. On the adulteration of agricultural seeds	10	0	0
IX. Any other agricultural subject	10	0	0

4. The reprint of Dr. Lang's Prize Essay on Potatoes is now laid on the table, and recommended to be sold at the following prices:—
   1d. each, or 6s. per 100 to Members of the Society.
   1½d. each, or 9s. per 100 to Non-Members.

Lord Leigh, chairman of the General Warwick Committee, presented the report of the Committee in reference to details connected with the Warwick meeting.

Mr. Pain was elected one of the Stewards of Show-yard receipts in place of Lord Portman, who will be unable to attend.

The report of the special Committee on the past accounts of the Society was received and adopted, and the Honorary Acting Secretary was authorized to take steps relative to a deed of assignment executed by the late Mr. Hudson previous to his death.

The Report of the Committee on the duties of Secretary and mode of his appointment having been read, it was resolved, on the motion of Sir John Shelley, Bart., M.P., and seconded by Sir Edward Kerrison, Bart., M.P., "That the office of Secretary and Editor shall not be combined."

It was resolved, on the motion of Lord Feversham, "That the Secretary's salary be 400*l.* per annum; the Secretary to reside in the Society's house, and have coals and lighting."

It was ordered that advertisements be inserted stating that all applications from candidates for the office of Secretary be sent to the Honorary Acting Secretary on or before the 30th of October next.

The following recommendations of the Committee were confirmed, viz.: That the Secretary shall devote his whole time to the affairs of the Society. That he shall find approved security to the amount of 1,000*l.* That it shall be considered an additional recommendation to a candidate if he possesses a competent knowledge of French and German.

Other recommendations of the Committee on minor details were also confirmed.

On the motion of Lord Portman, Mr. Brandreth Gibbs was requested to continue to undertake the duties of Honorary Acting Secretary, until a new Secretary be elected.

Mr. Raymond Barker expressed his determination to resign the office of Vice-president.

On the motion of Col. Challoner, Mr. Manning's offer to undertake on the usual terms such works as the Council may hereafter determine upon to require next year at Canterbury, was accepted.

On the motion of Mr. Fisher Hobbs permission was given to the Stewards and Judges of the Show to make arrangements for the trial of Grass-mowing Machines at Warwick, and to report thereon.

Various communications were laid before the Council, and it was decided what replies should be given thereto by the Hon. Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT WARWICK.

Like the moth dazzled by the light of a candle, the bee poising himself over a sun-flower, or a bird terribly tempted to peck at the best fruit, the Royal Society of Agriculture seems to be more and more attracted towards the metropolis. Now it nearly singes its wings at Chelmsford. Anon, still hovering around, it settles again almost as handy at Salisbury. Then, it is true, taking a stronger flight, we see the bird of passage striking out for North Wales, though only to return with a greater longing towards its own haven. Warwick brings it once more within range, and Canterbury will mark it down in good easy shot. Until at length, in 'sixty-one, the bird is fairly caught, the queen bee housed, or the foolish fly self-sacrificed. No doubt this gradual approximation to head-quarters is more or less accidental. The different districts remaining to select from have given the Direction but little alternative, and we have thus been forced as it were to hang about home. There are some who perhaps would have us keep here, if it were only on the excellent showing of a gentleman who, a year or two since, bodily proposed as much—because it was so difficult to get beds in country places.

Fortunately there have been few ready to go with such a proposition, and in a year or two's time the Society will be longing again for fresh air and change of scene. Indeed, however successful these neighbouring calls may have been or will be, they naturally fail somewhat in drawing out many new men or introducing much novelty. Some former and more locally remote meetings are still remembered for especial features of their own. Recently, however, we have been losing these landmarks. Essex and Wilts or Hampshire were pretty well acquainted with the Society, as was the latter with the merits of these districts, ere their more formal introduction to each other. In fact, such occasions have passed off without any grand impression either one way or the other, and it could hardly have been otherwise. Both the visitor and the visited were already familiar, and any extraordinary sensation was scarcely to have been expected.

The Warwick Show will be thus written on the record. It was a good average meeting, without anything of special importance to mark its history. The Society, to be sure, still continues to increase in influence, and in some departments the entries were, as usual, "greater than was ever known before." This was more particularly the case with the implements, which were never previously seen in such numbers, and had never been of such general excellence. But even here there was little or no novelty. The steam plough has long been a standing dish at these entertainments; although, perhaps, to people who do not go much from home it is yet the great treat of the day. Certainly in the trial fields, Fowler's plough and Burgess and Key's new mower had clearly the call. We do not speak here so much of the judges as the common body of spectators, and it is seldom we remember any machinery in work that has recommended itself so strongly to the public. The proprietors or inventors of the new mower should be especially thankful for the official exposition allowed them; while the Society will have to bear in mind even the more from this, how advantageous it may be to travel occasionally a little out of the mere line and rule, of once in three or four years, and take up a point when such authority is really useful and requisite.

In some other divisions of both the stock and the implement departments, the interest and excitement were not so much over what was exhibited as what was done with it. Seldom have precedent and established reputation been so thoroughly upset. It was impossible to turn any way, but you met with some great man discomfited. Jonas Webb had been beaten for Southdowns; the Booths had got the worst of the Shorthorns; and the Howards not as hitherto *all* the best of the ploughs. The office of a judge, we can answer for, is not always the most agreeable of duties; but never did we hear men in authority so fiercely canvassed as some of those at Warwick. Still, it must not be supposed that this discussion would apply equally to the three instances we have given. On the contrary, the Babraham flock was fairly beaten by the best Southdown sheep—the Duke of Richmond's shearling—ever seen in a show-yard. Then, again, the performance of Hornsby's new plough—and finding such a plough in their name was a novelty—was extraordinary for its excellence, and he would have been a bold man who could have stood by the work and disputed the award. But the decrees over the high-bred cattle were by no means so quietly submitted to. One exhibitor, indeed—Mr. Booth, of Warlaby—has gone so far as to lodge a protest over the placing of the shorthorn heifers in-calf. He does this, we believe, on the ground that his Queen of the Isles is not even noticed, and as he maintains she is clearly the best of the class, he demands to know why the Judges have disqualified her. Of course, any such objection as this can never hold water, or every other exhibitor would be making one. It is, however, only fair to say that the majority of the public also regarded this as a mistake, almost every one preferring the Queen to the second prize, and some went so far as to draw a comparison in her favour against the first. But we hardly go to this. Colonel Towneley's is a beautiful heifer, with a lovely head, a wonderfully good line along the back, and unquestionably much the better behind. It is just here that the Queen of the Isles fails; but she is truly magnificent in many other of her points; and it will always be a curious query how she was entirely passed over? Those learned in the lore will remember that Mr. Booth's was the first prize yearling heifer at Chester.

There is no denying that the Shorthorn Judges at Warwick went on something of a new principle. They would not have mere pedigree or quality answer for everything, but stood out a little more for meat, size, and substance, with symmetry. There were, too, many sound practical men ready to uphold them in what they did. In plain truth, the fashion of thing was manifestly threatening to carry itself a little too far. We were getting to delicate narrow animals, that promised soon to neither milk, breed, nor feed. There was many such an illustration, on the Warwick Show ground; and the courage of the Judges here must lead to a little wholesome correction. Admitting the two-year-old heifer case to have been an error, there was a vast deal of wild talk on other decisions, that could have been attributable to nothing but prejudice. There were some, for example, who would have denied Mr. Stratton his honours with Matchless the Fourth, the second at Chester, the first here, and now grown into as fine a cow as ever entered a show-yard. She is a capital roan in colour, has a good head, wonderful chest and brisket, and altogether an extraordinary forehand; while she is beautifully fleshed, and almost as commendable for her general symmetry. In a word, we think no animal was ever more fairly placed, although she did beat, in addition to those named in the prized and commended list, Mr. Douglas's renowned Ringlet, and one or two more equally well-bred ones.

But the strength of the Shorthorns, and we might perhaps go on to say of the whole Show, was in the two-year-old and yearling heifers. It is significant of their uniform goodness to note the award of the judges, who commended everything they saw here. And all the best men were here too—Booth, Colonel Towneley, Douglas of Athelstaneford, Stratton, Grundy, Captain Gunter, Marjoribanks, Noel Hill, Sir Charles Tempest, and Jonas Webb, with comparatively new men, like Mr. Robinson of Clifton, and Mr. Fowler of Henlow. It has been already intimated that the selection from such stock was made by no means altogether upon previous precedent. This was not only remarkable amongst the two-year-olds, but quite as strikingly with the yearlings, some of which had already come together. At Northallerton, for example, the second-prize heifer of Warwick, The Maid of Athelstane, was first, and the first of the Royal Show, Mr. Grundy's Faith, third—Booth's Queen of the Vale, exhibited but not specially noticed here, dividing them. Faith is an animal of great length and fine form, with every promise of further development, although with a little "touching" Mr. Douglas would have not only the best of her entry, but one of the most valuable cows of her sort. She is extraordinary for her touch and quality, has a rare back and quarter, but is rather spoilt by a steer horn and a queerish shoulder. There is little doubt but the two will come together again, and these awards be further adjusted. But it was impossible for a man to go through such a range of animals without making a fancy for himself; and there is plenty of "proof" still to be had out of them.

It has been a common observation of ours for some time past that the Durham cows show far better than the male animals, and this was essentially so at Warwick. Seldom has there been such a mixed lot of bulls at a national meeting. If a visitor had stopped here he would have gone back with no very high opinion of the continued improvement of the improved Shorthorn. The best aged bull, to begin with, and a long way the best of his class, was thought to be nothing beyond a useful animal, although a far better-looking beast than Lord Feversham's first prize at Chester. His symmetry is much more perfect: he has a good head, with a kindly expression about it, stands very well before, and has a rare back and capital thighs. Still there is a manifest want of style about "Radford," and he is about the worst-coloured animal we ever saw: a kind of creamy trout-spotted one, by courtesy called "a roan." The second to him is the Cobham bull Marmaduke, who has plainly seen his best day. He stands well before, but is anything but level, and threatens altogether to get worse instead of better. The second prize bull at Chester, Marc Antony, and the first prize two-year-old of that meeting, Lord Hill's Hetman, were both of them commended here; but neither is of quite first-class character. In fact, as is commonly the case with them, the pride of the Shorthorns here again was with the younger animals, and two of these commanded a great deal of earnest attention. They were Colonel Towneley's Royal Butterfly, an own brother to Master Butterfly, and Royal Turk, a yearling, the property of Mr. Ambler. It might be a question with some which was the better of the two, although the market evinced no doubt about it. The present representative of the family name and honours has already reached his brother's repute. An offer of twelve hundred guineas on the part of some Australian gentlemen for Royal Butterfly was refused, while Royal Turk was sold to Mr. Langstone for three hundred and fifty. The latter, it must be observed, was not shown amongst the Shorthorns, but in the "cattle best adapted for dairy purposes." This is something of a distinction without a difference, as nearly all the animals entered were well-bred Shorthorns, some of the pairs of cows being amongst the grandest, and certainly at the same time most useful-looking stock on the ground. It was curious to see how soon Royal Turk was found out here, even in such disguise, while Butterfly's more prominent position amongst his own order commanded for him one continual crowd of admirers. He is certainly a most taking animal, with as true and handsome a bull's head as poet could wish to sing of, or painter to sketch.

If we consider the locality in which they were exhibited, the Herefords can hardly be said to have realized what was expected of them. But nothing is more uncertain than a show of this kind of stock, and nothing more uneven than the present one. There appears to be an under-current of feeling amongst the breeders, as to what the type of a Hereford should be. In many herds the original grand size has been departed from, and a neater, closer standing beast substituted. The latter would now appear to have the call. Mr. Hill's bull, the first in his class at Chester, and the best aged bull here, has nevertheless, not much improved. He is a compact, short-legged, broad-standing beast, but very dark in his colour, rather patchy, and decidedly bad about the rumps. Some of those behind him had their partizans, while the most liked of all was a very handsome young bull of the Prince Consort's, that deservedly stood as the first of his set. The second prize two-year-old, a very well-formed beast, is noticeable as having been calved in the yard at the Salisbury show, and hence his name. It struck us the cows and heifers evinced more of the true, fine character of the Hereford than the males; and some of them were really perfect specimens of their kind. Still neither these nor the Devons had anything like the popularity of the Shorthorn, notwithstanding that the latter were especially well represented. Mr. Quartly, Mr. Turner, Mr. Merson, and His Royal Highness the Prince Consort, sent some patterns of purity, and these were well backed by Mr. Farthing, Mr. Umbers, and others. Mr. Farthing's prize bull is of great length, and Mr. Quartly's particularly handsome. An old favourite of ours, however, Mr. Merson's Prince of Wales, could get no further than a commendation; but the gem of the Barnstaple show, the Prince's yearling, distinguished herself as we anticipated. She was only beaten for first place by a yet more handsome heifer than herself—another of the Quartly's. But His Royal Highness may honestly plume himself on his Devon herd, bred with remarkable care and judgment, and showing perhaps even to more genuine advantage at the Norfolk Farm than even on the course at Warwick. In the cow classes, the awards recently made in the West-country were partially corrected, and with little question as to the wisdom so exercised by the superior court. Still there was no desire shown to pass over good useful properties when duly combined with the orthodox points of that most attractive-looking and truly symmetrical animal—the North Devon.

If the Warwick show be remarkable for any one feature in which it surpasses the previous meetings of the Society, it is in the entries of riding horses. Taking the general strength of stallions, mares, and hunters, they have never been so good. This, no doubt, may in some measure be accounted for, from our being here in the very centre of a famous hunting country; but, still, in proof of the increasing interest evinced for such classes, many of those exhibited were sent from long distances. The section opened well with as good looking a thorough-bred horse for getting hunters the Royal gatherings have ever yet attracted. Hunting Horn, to begin with, is by far the best-bred horse of the lot; but he combines with this the most extraordinary power, size, and substance. In fact, he was so big as a young one, that he never could be properly prepared, and even now at five years old he can hardly be said to have quited formed or furnished. Should he only go on right, and fine a little about the shoulder, he must in a year or two's time develop into a magnificent animal. When we remember such prize stallions as Spencer, Ravenhill, and Loutherbourg, we may well feel satisfied with such a successor to them as Hunting Horn. The thorough-bred horse award at Chester last year was "corrected" the very next week in Yorkshire; but we should think a new trial need hardly be granted here. Still there were two or three well-known horses sent, such as The Ugly Buck, Sprig of Shillelagh, and Sir Peter Laurie. The last-named of these is not so great a horse as one would expect to see; and The Ugly Buck, light and very racing-looking, has the credit of getting better hunting stock than he would quite promise to do. Three or four very coarse, evidently half-bred animals were also shown in this class, but of course unnoticed. The hunting mares, as a lot, were better; and there were some half-dozen of them especially good. The prize in the first instance was awarded to perhaps the finest mare for such a purpose ever seen on a show-ground. She is now the property of Mr. Fowler, of Aylesbury, but was sold two or three years since for no less than nine hundred guineas to carry the Empress of the French. Her right eye, however, went, either from disease or accident, and she re-crossed the Channel. The veterinary surgeons attributing its loss to the former cause, refused to pass her; although up to the end of the week "Empress" appeared in the list as the first prize mare. We were bold enough to inquire of one of these inspectors how it was she was first on the list and nowhere in the show itself. His reply was, that "it was simply a clerical error," which is a fine Delphic oracle kind of answer, no doubt, though what it really means we have not even now the slightest possible idea. If we stood in Mr. Fowler's place we should distinctly request to know why the veterinary surgeons disqualified his entry after the judges had passed her. Such a protest is a very different kind of objection to that of Mr. Booth. Blindness may or may not be hereditary, and we will not venture to say which it is in this case; but nine times out of ten it is not, and at any rate Mr. Fowler is surely entitled to know "the reason why." The famous stallion Defence was blind for many years, but few of his stock, that we are aware of, took this malady from him. A thorough-bred brood mare, the property of a near relative of our own, was stone blind when put to the stud; but she threw nearly a dozen foals that were trained, hunted, and ridden as hacks, without one thus failing. Horses go blind from infinite causes—over feeding, bad stabling, hard work, and all kinds of things. But it yet remains to be proved that any of these are hereditary, or, in other words, disqualifying reasons. Mr. Fowler distinctly asserts his mare went wrong from an accident; the veterinary surgeons, on the other hand, trace this to primitive disease. The question is, which of the two is the real fact. Of course "a clerical error" is no answer at all, especially as one of the judges assured us they had picked her out as the prize mare. Even more than this, the other eye might "go" from mere sympathy, and at any rate the point is worthy of some more definite explanation than that conveyed in "a clerical error."

The premier honour is, however, now claimed by Mr. Holland, with a very clever-looking mare, whose antecedents in the way of pedigree, like that of the Empress, are altogether unknown. As a consequence, Mr. William Shaw, of Coton, succeeded to the second place with a Mundig mare, accompanied by a most extraordinary foal, an early one certainly, but as well grown, handsome, and promising as any man could wish to see. Oulston has the credit of him, and the peculiar lop ear answers of itself for the paternity. Amongst the remainder was a thorough-bred one by Bay Middleton, known as Days of Yore; a really beautiful chesnut, uniting blood and power, and intrinsically about the most valuable mare of the entry. No less than four-and-twenty were nominated for the hunter prize, and the judges commended every one of them. In a word, the Society is making a wonderful advance in this way, and there really was hardly a horse shown but his owner might have fairly expected to win with him. By some happy instinct the judges again got hold of the best-bred one—by Drayton, dam by Steamer—the very pedigree for a hunter, and a horse of rare, grand style, with a beautiful flat leg, over seven inches round below the knee. Lord Berners stood second with Barbara, and then we had Mr. Booth highly commended for a very clever Barnton horse, and Mr. Formby and Mr. Arkwright as greatly distinguished. Many leant also to a bright bay of Mr. Berry Congreve's, as "about as good as anything," and we hear he was sold during the week at a long figure. The ponies did not muster so strong, but they were all good. Mr. Cresswell Wall sent two that we noted at the time as in favour at Barnstaple; a very pretty one of Mr. Sullivan's came from Dublin, and Sir Piers Mostyn, as at Chester, headed the class with that handsome galloway, Young Bantam. But it was hardly fair to compare him with that little bit of perfection, the brown Monmouthshire pony at his side. The hack mares were indifferent, and, on some showing we cannot understand, the judges appeared to select the most under-bred hairy-heeled of them all. However, quite enough was done at Warwick to prove that the Royal Agricultural Society can accomplish that which the Council once declared they never could—a creditable or even excellent entry of riding horses. Moreover, be it ever remembered that it is decidedly one of the most popular sights of the show.

The agricultural horses were not so generally commendable, and hardly in any way up to the mark of some former anniversaries. Neither of the two prized all-aged stallions were really first-class horses; and the judges had some difficulty in deciding which was the better of them. The preference, on a division, was given to a smart, compact Lincoln horse, with the strong drawback of indifferent action. Mr. Clayden's Suffolk has already been distinguished as the best yearling at Chelmsford and the best two-year-old at Salisbury. He is a famous topped horse, of great size, but with something very like a malformation in one of his feet. Although so far so good, the Suffolk men fancied something better of their sort had been passed over, but the breed took a much better standing than it often has done at the Royal Meeting. Mr. Frost, Mr. Wrench, Mr. Badham, and Mr. Barthropp sent some of those famous mares we have had so much to say of lately; and Mr. Crisp had his "Emperor," which did get a prize at Chester, and that all his friends declared should have had one now. He is grown into a grand colt, and is sure to be heard of again. It is remarkable, as showing the strength of one particular strain, that the best mare, the second mare, and the best two-year-old filly were all by the same horse, "Royal Duke." There was a ready market for the chestnuts even in this land of blacks, browns, and greys; and Mr. Frost sold his mare for 120 guineas, Mr. Wrench his two-year-old for 90 guineas, and Mr. Barthropp a lot, of a mare, her foal, and a two-year-old, for something over two hundred, to Lord Shrewsbury. Neither of the Cretingham horses was entered. The "Hero," indeed, has shown temper this season, and Mr. Rarey was to reason with him at the Alhambra on Saturday last, but we did not get up in time to witness their interview. A Suffolk on his marrowbones would be something of a sensation for the West-end class!

Judged by their own merits, and altogether independent of any peculiar fancy or fashion, the two best stallions for agricultural purposes were the first prize dray horse and Mr. Holland's bay two-year-old. The latter distinguished himself at the West of England meeting last month, when we spoke of him as "promising to furnish out into a great fine horse;" a notion which his visible improvement since then goes more and more to confirm. The dray horse, England's Glory, got by England's Glory, and he himself the sire of England's Glories, an echo that must lead to confusion sooner or later, still bears marks of the mishap he met with last year on his way to Chester. But he shows remarkably well. Lively and active, of immense power and substance, short on the leg and very true in his symmetry, it is pardonable to find his owner challenging all the world with him. There were some other good Shire horses, as the prize lists will show, and one or two of no great style, so adorned with the prize medals of previous years, that people wondered where or how long since they gained them. The black horse of the Midlands must be going out of repute, at any rate he was very scantily represented here, and it is seldom at a national show we have had the Clydesdales in such little force. The Prince Consort sent one of his own breeding, which took a second prize, a neatish, close-made filly, by the Chelmsford Britain, that we recognized at once the other day from his clever action, as he took his morning walk at bush harrow, near the Shaw Farm. The Warwick local premiums for cart horses were noticeable for a few capital working pairs, some of them wonderfully well matched.

The strength of the Sheep Show centred clearly in the short-wools. Notwithstanding that Mr. Sanday and Mr. Pawlett lent their aid to the Leicesters, the class was not much fancied, and the theaves particularly were objected to, as light and delicate, and deficient in that great recommendation to an Englishman—a good leg of mutton. With still some good rams to recover them, the Leicesters were, as a whole, below the average of many former meetings. The Southdowns, on the contrary, were never so good. As we have already intimated, the Duke of Richmond was declared to have the best type of a Down ram that has ever been exhibited. We have long maintained there is a purity of character about his Grace's flock which scarcely any other can demonstrate. Whether this be attributable to care, climate, or soil, we cannot say: perhaps to a combination of the three. Great care has clearly been evinced in crossing with some of the picked of Mr. Jonas Webb's rams, and the result is that the latter for the time at least is well beaten. In the Shearling Ram class Mr. Webb entered no less than eleven and the Duke but four. The award, however, was never, we believe, for a moment disputed, and the shearling Southdown vied with Royal Butterfly, the four-year-old hunter, and Mr. Harrison's pig, for the great honours of the occasion. The Babraham entry did not extend beyond this, and amongst the all-aged rams and the ewes, the Duke had consequently an easy victory. Mr. Rigden, in fact, was the only man who came at all near him; while Lord Walsingham, who seems to depend quite as much on feeding as breeding, had in such company not "the ghost of a chance." The Short-wools "not Southdowns" were in their collected force yet more remarkable. In truth, there never was such a lot—either for so many or so good. There were Oxford Downs, West Country Downs, Shropshire Downs, and Hampshire Downs—each variety with some especial characteristics of its own; but all with those great points for the farmer—plenty of mutton and wool. The judges here, again, commended whole classes; but they went for choice to the West Country, and great was the admiration over Mr. Humphrey's entries. The Oxfords stood next, with Messrs. Druce, Bryan, and Charles Howard, asserting the rights of this novus homo. The Shropshires had an especial class to themselves, and generally a good even show of them, but hardly evincing that advance which has latterly been expected. The Cotswolds had, as usual, all the call of the other long-wools, with Mr. Garne, Mr. Fletcher, and Mr. Walker this year in the ascendant. But the breed did not command that attention it would have done in other localities. What people dwelt on here in the way of varieties was not so much "other long wools" as "other short wools."

In no division was the improvement more decided than in this year's exhibition of pigs. Almost the only objection now is to the sub-division made amongst them, so indefinite as to be little more than a mere matter of fancy. One man calls his a "large," and his neighbour his litter "a small breed," and as scarcely any one could say which was which, the distinction passes accordingly. Surely a much better way would be to classify them as blacks and whites. However, a good pig, like a good horse, can hardly be of a bad colour, and whites, and Berkshires, and blacks and whites, and Essex and Suffolks alternated in the ascendant. As usual, there were some lamentably over-fed, and one immense white beast died early on the Wednesday. We wonder if it ever happened that a judge disqualified a pig for being over-fed? However, the judges here were evidently well satisfied with what they saw. They commended generally every class of Berkshires brought before them, and they did as much for some other sorts in the local list. There was more meat and less offal. The big pigs especially were the "cleanest" they had seen, and Mr. Harrison's white boar was a very marvel of size and quality. He was two feet four and a-half across the shoulder; he was six feet five in the girth round behind the shoulder; he was smart and active when you had him up; and, as we have declared already, he was one of the sights of the day. The Berkshires were, again, never more "evenly" good, and never better, and the Prince Consort sent the prettiest and most perfect white Windsors his Royal Highness has ever yet bred. There was no poultry show, and certainly nobody seemed to miss it more than Mr. Harrison Weir.

We must ask some of our own staff to complete the picture, and to say how the implement makers fared, the judges worked, the stewards acted, and the public behaved. The latter, if anything, were almost a little too much interested, and the manner in which at times they got in the way was something to try the most even-tempered of men, the state of the thermometer and all things considered. In the trials of the ploughs and mowers more particularly, the mere lookers-on were wonderfully active. They advised the judges, they counselled the exhibiters, and they defied the stewards with great resolution and authority. But still there was something to be offered in extenuation. They really did take a part in what was going on, as they proved before the week was out. Never before were there such good customers. Never yet did "the trade" do so good a business. From Mr. Fowler and his steam-plough down to swing-gate and pulper makers, many were fairly sold out. The trials resulted in some two or three very noticeable conclusions. Fowler's plough, for one, was indisputably the favourite in both its work and machinery against Smith's cultivator, and the public went generally with the decision. Then, Burgess and Key's mower confirmed the reputation that had preceded its arrival here. It did its work well, easily, and with a certain simplicity in its action that are all sure to tell. We have already referred to "the surprise" occasioned by Messrs. Hornsby's success with their new plough. It will be found that they stand first for both the light and the heavy land; but that the Howards still keep their position intact as the makers of the famous general purpose plough. Hornsby has something of a novelty in the construction of his implement, which is detailed elsewhere, but it was confided to a Bedfordshire man to carry it out. The ploughman Browne was originally with the Duke of Bedford, at Woburn, and subsequently we believe with the Messrs. Howard. He has profited by his education, and been champion in many an All England match. The only wonder is how he was allowed to leave his own neighbourhood. The Ransomes' second and second over again went to assert something of a distinction without a difference, and as we said last week, it was from the first a hard struggle between Grantham, Bedford, and Ipswich.

As, then, a business week, and as one in which the gradual improvement in the real uses of agricultural machinery is more than ever apparent, we can speak well of Warwick. As a stock show it is also to be upheld, while as a well-managed meeting it is beyond all praise. The Stewards in the field and the yard were alike worthy of the trust reposed in them, and if Mr. Brandreth Gibbs never took a prize for "good conduct" at school, he has fairly earned it now. It would have been almost impossible to have found any other man to do all he did here—with the same dispatch, methodical arrangement, temper, and decision. We never saw him once at fault, and we remember nothing to find fault with. The Local Committee, too, did all in their power, and did it well. But we stop here. The Council and the Society were welcomed after a fashion almost hitherto without precedent in the history of these Meetings. The weather was warm, and the strangers were pressed to have whatever they liked to drink—at their own expense. Even some amongst the most worshipful were all but myths, and one was supposed to be hidden somewhere or other on the course, with an apocryphal case of champagne under his arm. There was the Castle to be "seen" to be sure—at certain times and by special ticket; and many a hungry wanderer was regaled—with a look at the bone of the famous Dun Cow. There was a ball at which anybody got in at so much a head—and the talking fish to be consulted on the same terms—and the minstrel somebody at a shilling each—and so on. The Stewards and Council in very charity had some of the poor County people to dine with them every day, and so of course everything went off uncommonly well, and everybody was perfectly satisfied, and so forth. But of all the inhospitable regions, of all the make-believe welcomes of flags and flowers—we say no more, but turn our backs on Warwick, and find old Falstaff's ease and comfort in that best of hostelries, "The Crown," at Leamington. "The toast of the evening, gentlemen, is our noble selves, and many thanks to us for the manner in which we have managed to get on."

The General Meeting was held, as usual, on the Friday, when, as somebody said, "Mr. Sidney made his usual speech." We shall allow it to tell its own story. Unfortunately for its effect, a good deal of the ground had already been cleared, and one of its best points was the recent vote of thanks to the Finance Committee, who, from their acknowledged incapacity, had been compelled to resign! We might as well have passed a vote of thanks to the town and county of Warwick, for the hearty hospitality with which the Society had been received. As it was, a vote of thanks was really offered to the Railway Companies, for combining to keep the people out of the way by not running excursion trains. As a consequence the attendance on both Thursday and Friday, despite the finest of weather, was some thousands below that at Chester. But altogether there was a far better tone about the General Metting. There were more members present, and a much readier inclination evinced to depose King Log and General Routine. Indeed, everybody appeared to go with the times but Mr. Caldwell, who thought farmers could not be induced to attend meetings of the Society, and who must know already, from his experience of another such a society down in the West, that farmers cannot by any means be brought out. Suppose Mr. Caldwell was to look a little in the other direction, and ascertain how the farmers now on the Council do attend, and how often some of the great people come. We believe there are many of the latter who don't get into Hanover-square from one year's end to the other. It will never do to keep trimming and fiddling about the ship in this way, but let her go ahead with a broad sail. If you want a good crew to man her, only offer them fair terms; they will enter fast enough, and stick to her as long as she can float.

PRIZES FOR CATTLE.

SHORT-HORNS.

JUDGES.—Charles Stokes, Kingston, Kegworth.
James Topham, Welford, Northampton.
John Wright, Chesterfield.

Bulls calved on or before the 1st of July, 1857, and not exceeding six years old.

First prize of £30 to John H. Bradburne, of Pipe Place, Lichfield (Radford).

Second of £15, to the Hon. Colonel Pennant, M.P., of Penrhyn Castle, Bangor, Carnarvon (Marmaduke).

Third of £5, to Stephen Gooch, of Honingham, Norwich.

Highly commended.—Viscount Hill (Hetman), John T. Noakes (Prince Alfred).

Commended.—Lord Feversham (Prince Imperial), Miss E. Barrowby (Marc Antony), William Todd (Young Heir-at-

Law), Sir C. R Tempest, Bart. (Emperor Napoleon), and Jonas Webb (Sir Charles).

Bulls calved since the 1st of July, 1857, and more than one year old.

First prize of £25 to Lieut.-Colonel Towneley, of Towneley Park, Burnley, Lancaster (Royal Butterfly).

Second of £15, to Henry Ambler, of Watkinson Hall Farm, Halifax (Prince Talleyrand).

Third of £5, to John Lynn, of Stroxton, Grantham, Lincoln (Great Comet).

Highly commended.—John Armstrong (Vatican).

Commended.—John Hall (Robin Hood).

Bull Calves, above six and under twelve months old.

First prize of £10 to Wm. Fletcher, Radmanthwaite, Mansfield (Prince of Warwick).

Second of £5, to Richard Stratton, Broad Hinton, Swindon (Magician).

Highly commended.—Richard Stratton (Mars), and Lieut.-Col. Towneley (Bow Bearer).

Commended.—Wm. Wells (Prince Imperial).

Cows in milk or in calf.

First prize of £20 to Richard Stratton (Matchless the Fourth).

Second of £10, to Richard Eastwood, of Swinshaw, Burnley, (Rosette).

Third of £5, to Wm. Todd, of Elphinstone Tower, Tranent, Haddington (Volga).

Highly commended.—John Hutt (Favourite).

Commended.—The Hon. Colonel Pennant, M.P. (Moss Rose), and John Armstrong (Virginia).

Heifers in milk or in calf, not exceeding three years old.

First prize of £15, to Lieutenant-Colonel Towneley (Fidelity).

Second of £10, to Francis Fowler, of Henlow, Biggleswade (Daisy).

Third of £5, to Lieut.-Col. Towneley (Pearl).

Highly commended.—Lieut.-Col. Towneley (Emma), Stewart Marjoribanks (Vesta), and James Douglas (The Lady of Athelstane).

Commended.—Stewart Marjoribanks (Elegance), Captain Gunter (Moss Rose), and Edward Bowly (Songstress).

The class generally commended.

Yearling Heifers.

First prize of £15 to John Grundy, of The Dales, Stand, Manchester (Faith).

Second of £10, to James Douglas, of Athelstaneford Farm, Drem, Haddington (The Maid of Athelstane).

Third of £5, to Captain Gunter, of The Grange, Wetherby (Duchess 77).

Highly commended.—John Grundy (Victoria Regina), Richard Stratton (Matchless 6th), The Hon. and Rev. T. H. Noel Hill (Orange Preserver), Lieutenant-Colonel Towneley (Precious Stone), and Jonas Webb (Lady Alice Burdett).

Especially commended.—Richd. Stratton (Bee).

The class generally commended.

HEREFORDS.

JUDGES.—E. L. Franklin, Ascott, Wallingford.
Henry Trethewy, Grampound.

Bulls calved on or before the 1st of July, 1857, and not exceeding six years old.

First prize of £30 to Richard Hill, of Golding Hall, Shrewsbury (Claret).

Second of £15, to Lord Berwick, of Cronkhill, Shrewsbury (Severn).

Third of £5, to John Williams, of St. Mary's Kingsland, Leominster (Sir Colin).

Commended.—His Royal Highness the Prince Consort (Windsor), and John Naylor (Lucknow).

Bulls calved since the 1st of July, 1857, and more than one year old.

First prize of £25 to John Naylor, of Leighton Hall, Welshpool (Adjutant).

Second of £15, to William Perry, of Cholstrey, Leominster (Salisbury).

Third of £5, to Thomas Edwards, of Wintercott, Leominster (Leominster).

Bull calves above six and under twelve months old.

First prize of £10 to His Royal Highness the Prince Consort, Windsor Castle (Maximus).

Second of £5, to Chas. Vevers, of Ivington Park, Leominster (Stratagem 3rd).

Highly Commended.—Lord Berwick (Thickset).

Commended.—Lord Bateman (Sir Howard), and Lord Bateman (Warwick).

Cows in milk or in calf.

First prize of £20, to Thomas Rea, of Westonbury, Pembridge (Bella).

Second of £10, to Lord Berwick (Beauty).

Third of £5, to Rees Keene, of Pencraig, Caerleon, Monmouth (Beauty).

Highly commended.—George Pitt (Perfection).

Commended.—George Pitt (Countess). Philip Turner (Graceful).

Heifers, in milk or in calf, not exceeding three years old.

First prize of £15, to James Rea, of Monaughty, Knighton, Radnor (Czarina).

Second of £10, to Lord Berwick (Ada).

Third of £5, to John Naylor (Laura).

Highly commended.—Lord Bateman (Vesta). Thomas Roberts (Gipsey Queen).

Yearling Heifers.

First prize of £15, to Edward Price, of Court House, Pembridge, Leominster (Well-a-Day).

Second of £10, to the Rev. Archer Clive, of Whitfield, Hereford (Laura).

Third of £5, to Edmund Wright, of Halston Hall, Oswestry (Silver).

Highly commended.—Edward Price (Miss Coningsby). Philip Turner (Countess).

Commended.—James Rea (Diadem).

DEVONS.

JUDGES.—E. L. Franklin, Ascott, Wallingford,
Henry Trethewy, Grampound.

Bulls calved on or before the 1st of July, 1857, and not exceeding six years old.

First prize of £30, to Walter Farthing, of Stowey Court, Bridgewater (Sir Peregrine).

Second of £15, to John Quartly, of Molland, South Molton (Duke of Chester).

Third of £5, to Thomas White Fouracre, of Durston, Taunton (Napoleon).

Commended.—James Merson (Prince of Wales).

Bulls calved since the 1st of July, 1857, and more than one year old.

First prize of £25, to John Quartly.

Second of £15, to His Royal Highness the Prince Consort (The Colonel).

Third of £5, to William Hole, of Hannaford, Barnstaple (Ikbal).

Commended.—Samuel Umbers (Birmingham 5th).

Bull Calves above six and under twelve months old.

First prize of £10, to William Hole (Comet).

Second of £5, to George Turner, of Barton, Exeter (Earl of Warwick).

Commended.—Samuel Umbers (Birmingham 6th).

Cows in milk or in calf.

First prize of £20, to James Merson, Brinsworthy, North Molton (Lovely).

Second of £10, to Walter Farthing (Nelly).

Third of £5, to James Quartly, of Molland House, South Molton (Sylph).

Highly commended.—Samuel Umbers (Tulip).

Heifers, in milk or in calf, not exceeding three years old.

First prize of £15, to James Quartly (The Gem).

Second of £10, to George Turner (Vaudine).

Third of £5, to Edward Pope, of Great Toller, Maiden Newton, Dorset (Fancy the 3rd).

Highly commended.—James Hole.

The class generally commended.

Yearling Heifers.

First prize of £15, to John Quartly.

Second of £10, to His Royal Highness the Prince Consort (Lovelia).

Third of £5, to John Mildon, of Woodington Farm, Witheridge, Devon (Jenny Lind).

Highly commended.—James Quartly.

The class generally commended.

OTHER ESTABLISHED BREEDS

Not including the Shorthorn, Hereford, or Devon Breed.

JUDGES.—John Clayden, Littlebury, Saffron Walden,
John Parkinson, Ley Fields, Newark,
John B. Thompson, Anlaby, Hull.

Bulls calved on or before the 1st of July, 1857, and not exceeding six years old.

Prize of £10, to the Hon. Col. Pennant, M.P., of Penrhyn Castle, near Bangor, Carnarvon (Welsh).

Highly commended.—The Earl of Southesk (Polled Angus).

Commended.—His Royal Highness the Prince Consort (Alderney).

Bulls calved since the 1st of July, 1857, and more than one year old.

Prize of £10, to John Turville, of Hartley Park, Alton, Hants (Jersey).

Commended.—Lord Sondes (Norfolk Polled).

Cows in milk or in calf.

Prize of £10, to the Earl of Southesk, of Kinnaird Castle, Brechin, Forfar (Polled Angus).

Highly commended.—Richard Hawkes (Long-horn).

Commended.—The Rev. R. T. Forester (Alderney).

Heifers, in milk or in calf, not exceeding three years old.

Prize of £10, to Lord Sondes, of Elmham Hall, Thetford (Norfolk Polled).

Yearling Heifers.

Prize of £5 to The Earl of Southesk (Polled Angus).

Highly commended.—Lord Sondes (Norfolk polled).

HORSES.

AGRICULTURAL HORSES GENERALLY.

JUDGES.—J. Morley, Effingham, Croydon.
C. Randall, Chadbury, Evesham.
W. C. Spooner, Eling, Southampton.

Stallions foaled on or before the 1st January, 1857.

First prize of £25, to John Hemmant, of Thorney Fen, Peterborough (Lincoln, Emperor).

Second of £15, to Samuel Clayden, of Linton, Cambridge (Suffolk, Royal George).

Third of £5, to Henry Hitchcock, of Chittern All Saints, Heytesbury, Wilts (Warwick and Suffolk, Champion).

Highly commended.—Edward and Matthew Reed (Shire, England's Glory).

Commended.—John Lowe (Grey), Thomas Crisp (Suffolk, Marquis).

Stallions foaled in the year 1857.

First prize of £20, to Edward Holland, of Dumbleton Hall, Evesham (Shire).

Second of £10, Robert Henry Wrinch, of Harkstead, Ipswich (Suffolk, Comet).

Mares and Foals.

First prize of £20, to Charles Frost, of Wherstead, Ipswich (Suffolk, Diamond).

Second of £10, to G. D. Badham, of Bulmer, Sudbury (Suffolk, Duchess).

Commended.—N. G. Barthropp (Suffolk, Gyp).

Two-years-old Fillies.

First prize of £15, to Leonard Wrinch, of Arwarton, Ipswich (Suffolk, Diamond).

Second of £10, His Royal Highness the Prince Consort (Clydesdale, Jenny).

Dray Horses.

Stallions foaled on or before the 1st January, 1857.

First prize of £25, to Benjamin Taylor, of New Road, Peterborough (Lincoln, England's Glory).

Second of £10, to John Hemmant, of Thorney Fen, Peterborough (Shire, Thumper).

Stallions, foaled in the year 1857.

First prize of £15, to Thomas Hibbard, of Bishopstone, Farringdon (Shire, Lord of the Manor).

Second of £5, to William Buller, of Hanwell Fields, Banbury (Shire, Champion).

Commended.—John Manning (Shire, Young Matchless).

Mares with Foal at foot.

First prize of £20 to William Lowrie, of Cadoxton, Cardiff (Herefordshire, Stout).

Fillies foaled in the year 1857.

First prize of £10 to Thomas Russell, of Hodwell Manor, Southam (Shire).

OTHER HORSES.

JUDGES.—J. H. Bland, Thorpe, Newark.
T. Brooks, Croxby, Caistor.
Henry Thurnall, Royston.

Thorough-bred Stallions for getting hunters.

First prize of £25, to John Wadlow, of Shiffnal, Salop (Hunting Horn, by Surplice out of Ferina, by Venison).

Second of £15, to William Barnett, of Bay's Hill Lawn, Cheltenham (Sir Peter Laurie, by The Saddler, out of Well-a-Day by Priam).

Brood Mares, with foal at foot, or in foal, for breeding hunters.

First prize of £20, to Charles Aikin Holland, of Harford Hill, Northwich, Cheshire (breed unknown).

Second of £10, to William Shaw, of Far Coton, Northampton (mare by Mundig, and foal by Oulston).

Brood Mares for breeding Hackneys.

First prize of £15, to Walter Coleman, of Kingsbury Hall, Tamworth (breed unknown.)

Second of £5 to Samuel Wallis, of Barton Seagrave, Kettering (Pet, by Merrylegs).

SHEEP.

LEICESTERS.

JUDGES.—J. Bodley, Stockley Pomeroy, Crediton.
R. Hewitt, Dodford, Weedon.
N. C. Stone, Rowley Fields, Leicester.

Shearling Rams.

First prize of £20, to William Sanday, of Holme Pierrepont, Nottingham.

Second of £10, to William Sanday.

Third of £5, to William Sanday.

Rams of any other age.

First prize of £20, to Thomas Edward Pawlett, of Beeston, Sandy, Beds.

Second of £10, to Thomas Edward Pawlett.

Third of £5, to William Sanday.

Highly commended.—William Sanday, for another ram.

Commended.—William Sanday, for a third ram.

Pens of Five Shearling Ewes of the same flock.

First prize of £20, to William Sanday.

Second of £10, to William Sanday.

Third of £5, to Lieutenant-Colonel Inge, of Thorpe Constantine, Tamworth.

SOUTHDOWNS.

JUDGES.—H. Fooks, Whitchurch, Blandford,
H. Lugar, Hengrave, Bury St. Edmund's,
E. Trumper, Nuneham, Oxford.

Shearling Rams.

First prize of £20, to the Duke of Richmond, of Goodwood, Chichester.

Second of £10, to Jonas Webb, of Babraham, Cambridge.

Third of £5, to Jonas Webb.

Highly commended.—The Duke of Richmond, for *two* other rams.

Commended.—William Rigden, for *two* rams, and Jonas Webb, for a third ram.

Rams of any other age.

First prize of £20, to the Duke of Richmond.

Second of £10, to William Rigden, of Hove, Brighton.

Third of £5, to William Rigden.

Highly commended.—Sir R. G. Throckmorton, Bart.

Commended.—William Rigden, for a third ram.

Pens of five Shearling Ewes, of the same flock.

First Prize of £20, to the Duke of Richmond.

Second of £10, to the Duke of Richmond.

Third of £5, to William Rigden.

Highly commended.—Sir R. G. Throckmorton, Bart.

Commended.—The Duke of Beaufort.

LONGWOOLLED SHEEP.

(Not qualified to compete as Leicesters.)

JUDGES.—W. Bartholomew, Goltho, Wragby,
H. Bateman, Asthall, Witney,
H. Beevor, Barnby Moor, East Retford.

[*All these Prize Sheep were Cotswolds.*]

Shearling Rams.

First prize of £20, to Robert Garne, of Aldsworth, Northleach.

Second of £10, to Robert Garne.

Third of £5, to George Fletcher, of Shipton Sollars, Cheltenham.

Highly commended.—Robert Garne, for a third ram, James Walker, and John Gillett.

Commended.—George Fletcher, for *two* other rams; Edward Handy, for *two* rams; John Gillett, and Thomas Porter.

Rams of any other age.

First prize of £20, to Thomas Porter, of Baunton, Cirencester.

Second of £10, to Robert Garne.

Third of £5, to George Fletcher.

Highly commended.—Thomas Porter, and Edward Handy, for *two* rams.

Commended.—Robert Garne, for *two* other rams; and William Smith.

Pens of five Shearling Ewes, of the same flock.

First prize of £20, to Thomas Walker, of Yanworth, Northleach.

Second of £10, to William Lane, of Broadfield Farm, Northleach.

Third of £5, to George Fletcher.

Highly commended.—William Lane, and T. Beale Browne.

Commended.—T. Beale Browne, William Lane, and John King Tombs.

SHORTWOOLLED SHEEP.

(Not qualified to compete as Southdowns.)

JUDGES.—J. Blundell, Bursledon, Southampton,
J. Burgess, Launceston, Blandford,
J. Rawlence, Bulbridge, Wilton.

Shearling Rams.

First prize of £20, to William Humfrey, of Oak Ash, Chaddleworth, Wantage (West Country Down).

Second of £10, to William Humfrey (West Country Down).

Third of £5, to William Humfrey (West Country Down).

Highly commended.—William Humfrey (West Country Down), Charles Howard (Oxford Down), John Bryan (Oxford Down), and Joseph Druce (Oxford Down).

Commended.—The Duke of Marlborough (Oxford Down), William Gillett (Oxford Down), and Sampson Byrd (Shropshire Down).

Rams of any other age.

First prize of £20, to Samuel Druce, of Eynsham, Oxford (Oxford Down).

Second of £10, to William Humfrey (West Country Down).

Third of £5, to George Adney, of Harley, Much Wenlock (Shropshire Down).

Highly commended.—Thomas Horton (Shropshire Down), John Bryan, for *three* (Oxford Down) rams; and William Humfrey, for another (West Country Down) ram.

The class generally commended.

Pens of five Shearling Ewes, of the same flock.

First prize of £20, to William Humfrey (West Country Downs).

Second of £10, to Stephen King, of Old Hayward Farm, Hungerford (West Country Downs).

Third of £5, to William Browne Canning, of Chisledon, Swindon (Hampshire Downs).

Highly commended.—William Humfrey (West Country Downs), Thomas Edmond Miller (Oxford Downs), James and Edward Crane (Shropshire Downs), John W. Brown (Hampshire Downs), William F. Bennett (Hampshire Downs), John Moore (Hampshire Downs).

The class generally commended.

PIGS.

JUDGES.—Rev. C. T. James, Ashley, Devon.
J. S. Turner, Chyngton, Seaford.
J. Woolf, Haslington Hall, Crewe.

Boars of a large breed.

First prize of £10, to John Harrison, jun., of Heaton Norris, Stockport (white, with spots).

Second of £6, to John Woodcock, of Netherhampton, Salisbury (Berkshire).

Third of £3, to Michael Gavins, of the Fox Inn, Woodhouse Carr, Leeds (Yorkshire).

Highly commended.—Captain Curtis (white).

Boars of a Small Breed.

First prize of £10 to His Royal Highness the Prince Consort (white).

Second of £5, to John Harrison, jun. (white, with spots).

Third of £3, to John Holdway, of Weston, Bath (Essex).

The Class generally Commended.

Breeding Sows of a Large Breed.

First prize of £10 to Sir R. G. Throgmorton, Bart., of Buckland, Farringdon (Berkshire).

Second of £5, to William B. Wainman, of Carhead, Cross Hills, York (white).

Third of £3, to John Woodcock (Berkshire).

Highly commended,—John Harrison, jun. (white), John Spencer (Berkshire).

Breeding Sows of a small breed.

First prize of £10, to Thomas Crisp, of Butley Abbey, Wickham Market (black).

Second of £5, to George Turner, of Barton, Exeter (improved Essex.)

Third of £3, to Thomas Crisp (black).

The Class generally Highly Commended.

Pens of three breeding Sow-Pigs of a large breed, of the same litter, above four and under eight months old.

First prize of £10, to George B. Morland, of Chilton Farm, Harwell (black and white).

Second of £5, to William James Sadler, of Benthum Calcutt, Cricklade (Berkshire).

Highly commended.—William Hewer (Berkshire), Edward Bowly (Berkshire).

Commended.—William Hewer (Berkshire).

Pens of three Breeding Sow-Pigs of a Small Breed, of the same litter, above four and under eight months old.

First prize of £10, to His Royal Highness the Prince Consort (white).

Second of £5, to Robert H. Watson, of Bolton Park, Wigton, Cumberland (white).

SPECIAL PRIZES.

GIVEN BY THE WARWICK LOCAL COMMITTEE.

CATTLE BEST ADAPTED FOR DAIRY PURPOSES.

JUDGES.—J. Clayden.
J. Parkinson.
J. B. Thompson.

Bulls of any pure breed, calved on or after the 1st January, 1858, and not less than 12 months old on the 1st July, 1859.

First prize of £20, to Henry Ambler, of Watkinson Hall Farm, Halifax (Shorthorn, Royal Turk).

Second of £10, to John Kay Farnworth, of The Oak Farm, Alderley Edge, Chorley, Cheshire (Shorthorn, Earl Bertram).

Third of £5, to Lord Feversham, of Duncombe Park, Helmsley, York (Shorthorn, Vice-Chancellor).

Highly commended.—Joseph Heaward (Shorthorn, Young Champion).

Commended.—The Rev. Charles William Holbech (Shorthorn, The Duke), James H. Langston, M.P., (Shorthorn, Prince Frederick).

Pairs of Cows (without restriction as to breed), in milk or in in calf.

First prize of £20, to J. H. Langston, M.P., of Sarsden House, Chipping Norton (Shorthorns, Dairy Maid and Red Cherry.)

Second of £10, to The Hon. Col. Pennant, of Penrhyn Castle (Shorthorns, Buttercup and The Vine).

Third of £5, to Edmund Lythall, of Radford Hall, Leamington (Shorthorns, Trafford and Nonpareil).

Highly commended.—Henry Ambler (Shorthorns), Joshua Price (Shorthorns),

Commended.—Henry Rawlins (Shorthorns), Edward Bowly (Shorthorns).

Pairs of Heifers, of a pure breed, in milk or in calf, under three years old.

First prize of £20, to Joshua Price, of Featherstone, Wolverhampton (Shorthorns, Strawberry and Queen Anne).

Second of £10, to John Hutt, of Water Eaton, Oxford (Shorthorns, Orange Blossom and Laurestinus).

Third of £5, to John King Tombs, of Langford, Lechlade (Shorthorns, Flounce and Milkmaid).

Highly commended.—John Lane (Shorthorns), J. H. Langston, M.P. (Shorthorns).

Commended.—John Hutt (Shorthorns), William Woodward (Shorthorns).

Pairs of Yearling Heifers, of a pure breed.

First prize of £20, to Henry Ambler (Shorthorns, Lady Florence and Lady Blanche).

Second of £10 to Col. Pennant, M.P. (Shorthorns, Phantasy and La Cantatrice).

Third of £5, to William Fletcher, of Radmanthwaite, (Shorthorns, Minnie and Juliet).

Highly commended.—Richard Stratton (Shorthorns).

LONG-HORNS.

JUDGES.—J. Clayden.
J. Parkinson.
J. B. Thompson.

Bulls of the pure Long-horn breed.

First prize of £10, to Josh. Holland Burbery, of The Chase, Kenilworth.

Second of £5, to Michael Taverner, of Upton, Nuneaton (Admiral).

Commended.—Richard Hawkes.

Pairs of Cows of the pure Long-horn breed.

First prize of £10, to Lieut.-Col. Inge, of Thorpe (Dowager and Simple).

Second of £5, to John Godfrey, of Wigston Parva, Nuneaton (Lady and Beauty).

Highly commended.—E. T. Twycross.

Commended.—E. T. Twycross, and J. H. Burbery.

SHROPSHIRE SHEEP.

JUDGES.—J. Blundell.
J. Burgess.
J. Rawlence.

Shearling Rams.

First prize of £20, to John Coxon, of Freeford Farm, Lichfield.

Second of £10, to Henry Sheldon, of Braile's House, Shipston-on-Stour.

Third of £5, to Thomas Horley, jun., of The Fosse, Leamington.

Highly commended.—James and Edward Crane, and John Coxon.

Commended.—Thomas Mansell, and Pryce William Bowen.

Rams of any other age.

First prize of £20, to Mrs. Baker, of Grendon, Atherstone.

Second of £10, to James and Edward Crane, of Shrawardine, Shrewsbury.

Third of £5, to George Adney, of Harley, Much Wenlock.

Highly commended.—Thomas Horley, jun., J. Coxon and C. W. Thacker, and the Earl of Dartmouth.

The class generally commended.

Pens of Five Theaves.

First prize of £15, to Edward Holland, of Dumbleton Hall.

Second of £5, to James and Edward Crane.

Highly commended.—Thomas Horley, jun.

The class generally commended.

HORSES.

FOR AGRICULTURAL PURPOSES.

JUDGES.—J. Morley.
C. Randell.
W. C. Spooner.

N.B.—The Stallions (excepting the Ponies) must have served or shall serve for at least one season in the counties of Warwick, Oxford Northampton, or Berks.

Stallions for agricultural purposes, foaled before the 1st of January, 1857.

First prize of £20, to John Manning, of Orlingbury, Wellingborough (Shire, Sampson).

Second of £10, to Robert Spencer, of Shuckburgh Lodge, Daventry (Shire, Carlisle).

Commended.—James Morrell, Thomas Baldwin, and Joseph Ball.

Stallions for agricultural purposes, foaled in 1857.

First prize of £15, to William Buller, of Hanwell Fields, Banbury (Shire, Conqueror).

Second of £5, to Thomas Crisp, of Butley Abbey (Suffolk).

Commended.—William Wynn.

Pairs of agricultural Horses, Mares, or Geldings.

First prize of £10, to John Gay Attwater, of Hallingwood Farm, Cubberley, Cheltenham (West of England).

Second of £5, to John Beasley, of Chapel Brampton, Northampton (Suffolk).

Highly commended.—C. B. and J. W. Robinson.

Commended.—James Dormer.

One year old Fillies or Geldings for agricultural purposes.

The prize of £10, to William Lowrie, of Cadoxton, Cardiff.

RIDING HORSES.

JUDGES.—J. H. Bland.
T. Brooks.
H. Thurnall.

Mares or Geldings, of four years old and upwards, for hunting purposes.

First prize of £20, to Walter Coleman, of Kingsbury Hall, Tamworth, Warwick (four years old, by Drayton, dam by Steamer).

Second of £10, to Lord Berners, of Keythorpe Hall, Leicester (Barbara, by Sportsman, dam by Rubens).

Highly commended.—John B. Booth, J. T. Arkwright, and R. F. Formby.

The class generally commended.

Stallion Ponies, not exceeding fourteen hands high.

First prize of £10, to Sir Pyers Mostyn, Bart., of Talacre, Rhyl, Flintshire (Welsh, Young Bantam).

Second of £5, to James Cresswell Wall, of Redland Lodge, Bristol (Welsh, Jack).

Highly commended.—Denis Sullivan, and James Cresswell Wall.

The class generally commended.

PIGS.

JUDGES.—Rev. C. T. James.
J. S. Turner.
J. Woolf.

Berkshire Boars.

First prize of £10, to William Hewer.

Second of £5, to Edward Bowly, of Siddington House, Cirencester.

The class generally highly commended.

Berkshire Sows.

First prize of £10, to William Hewer.

Second of £5, to William James Sadler, of Bentham Calcutt, Cricklade.

The class generally highly commended.

Best pens of Five breeding Pigs, of the Berkshire breed, of the same litter, not less than three nor more than five months old on the 1st July 1859.

First prize of £15, to Joseph Smith, of Henley-in-Arden, Warwick.

Second of £10, to Joseph Smith.

The class generally highly commended.

Pens of Five breeding Pigs, of any other large breed, of the same litter, not less than three nor more than five months old on the 1st July 1859.

First prize of £15, to William B. Wainman, of Carhead, Cross Hills, York (White).

Pens of Five breeding Pigs, of a small breed, of the same litter, not less than three nor more than five months old on the 1st July 1859.

First prize of £15, to the Hon. Col. Pennant (White).

Second of £10, to Robert H. Watson, of Bolton Park (White).

The class generally commended.

STEWARDS OF STOCK.

Mr. Robert Smith, Emmett's Grange, South Molton.
Mr. Milward, Thurgarton Priory, Southwell, Notts.
Mr. W. Fisher Hobbs, Boxted Lodge, Colchester.

VETERINARY INSPECTORS.

J. B. Simonds, London.
J. Hunt, Birmingham.

PRIZES FOR IMPLEMENTS.

PLOUGHS.

JUDGES.—J. Brassnett, Hillborough, Norfolk
J. J. Rawley, Rawthorne, Chesterfield.

CONSULTING ENGINEER.— — Amos, Jun., Southwark.

FOR LIGHT LAND.

First prize of £4, Hornsby and Sons, Grantham.

Second of £3, Ransomes and Sims, Ipswich.

Third of £2, J. & F. Howard, Bedford.

Fourth of £1, Hensman & Son, Leighton Buzzard.

Turnwrest.

Prize of £2, John Eddy, Kentford.

For General Purposes.

First prize of £6, J. & F. Howard, Bedford.

Second of £5, Hornsby & Sons, Spittlegate.

Third of £4, Ransomes & Sims, Ipswich.

Fourth of £2, Busby Agricultural Implement Company, Newton-le-Willows.

Fifth of £1, Hensman & Son, Leighton Buzzard.

For Heavy Land.

First prize of £3, Hornsby & Sons, Spittlegate.

Second of £2 each, J. & F. Howard, Bedford; and Ransomes and Sims, Ipswich.

Third of £1 10s. each, W. Ball, Rothwell; and the Busby Agricultural Implement Company, Newton-le-Willows.

HIGHLY COMMENDED.

Busby Agricultural Implement Company, Newton-le-Willows, for light land plough.

William Ball, Rothwell, for light land plough.

Edward Page & Co., Bedford, for light land plough.

Ransomes & Sims, Ipswich, for turnwrest plough.

W. Ball, Rothwell, for general purpose plough.

HARROWS, ROLLERS, AND CLOD CRUSHERS.

Judges.—J. Hicken, Bourton, Rugby.
G. Hipwell, Cheam, Surrey.

Harrows for Light Land.

First prize of £4, J. & F. Howard, Bedford.

Second of £3, J. & F. Howard, Bedford.

Third of £2, Page & Co., Bedford.

Chain Harrows.

Prize of £2, Mapplebeck & Lowe, Birmingham.

Harrows for Heavy Land.

First prize of £4, J. & F. Howard, Bedford.

Second of £3, Page & Co., Bedford.

Third of £2, Ransomes & Sims, Ipswich.

HIGHLY COMMENDED.

E. H. Bentall, Heybridge, for harrows for heavy land.

Ransomes & Sims, Ipswich, for harrows for light land.

John Cartwright, Shrewsbury, for chain harrows.

Rollers.

First prize of £5, Trustees of William Crosskill, Beverley, for field roller.

Second of £3, Hill & Smith, Dudley, for field roller.

Third of £2, Hill & Smith, Dudley, for field roller.

Clod crushers.

First prize of £5, A. & E. Crosskill, Beverley, for clod-crusher.

Second of £3, W. Cambridge, Bristol, for clod-crusher.

Third of £2, Trustees of W. Crosskill, Beverley, for clod-crusher.

STEAM PLOUGHS AND CULTIVATORS.

Judges.—J. Druce, Eynsham, Oxon.
J. Thompson, Badminton.

Consulting Engineer.—W. Owen, Rotherham.

Steam Plough.

Prize of £50, John Fowler, jun., Cornhill, London, for set of steam-cultivating apparatus and balance four-furrow plough.

HIGHLY COMMENDED.

John Fowler, jun., Cornhill, London, for set of steam-cultivating apparatus.

John Fowler, jun., Cornhill, London, for balance three-furrow plough fitted with scarifier irons.

Cultivators for Light Land.

First prize of £5, E. H. Bentall, Heybridge.

Second of £3, Coleman & Son, Chelmsford.

Third of £2, Clay, Walton.

Cultivators for Heavy Land.

First prize of £5, Coleman & Son, Chelmsford.

Second of £3, Bentall, Ipswich.

Third of £2, Ransomes & Sims, Ipswich.

BRICK AND TILE-MACHINES AND MISCELLANIES.

Judges.—J. Clark, Long Sutton.
W. Tindal, Wheatley, Doncaster.

Consulting Engineer.—C. E. Amos, Southwark.

Local prize of £10, Loomes & Co., Whittlesea, for three sets of draining pipes.

Prize of £3, Thomas Scragg, Calveley, for hand-power tile machine.

Prize of £2, John Whitehead, Preston, for hand tile machine.

Prize of £15, A. & W. Eddington, Chemsford, for draining plough and windlass.

First prize of £3, Francis Parkes & Co., Sutton Coldfield, for bundle of draining tools.

Second of £2, Mapplebeck & Lowe, Birmingham, for bundle of draining tools.

First prize of £10, John Whitehead, Preston, for brick and tile machine.

Second of £5, Humphrey Chamberlain, Kempsey, for brick and tile machine.

Local prize of £10, William Torr, Grimsby, for field gate.

SILVER MEDALS.

Sidney Flavel & Co., Leamington, for a kitchen range.

Thomas Gibbs & Co., Piccadilly, London, for a collection of agricultural plants, seeds, and grain.

Peter Lawson & Son, Westminster, for a collection of plants, seeds, and grain.

W. H. & George Dawes, Barnsley, for patent atmospheric hammer.

Humphrey Chamberlain, Kempsey, for a dry-clay brick-making machine.

Humphrey Chamberlain, Kempsey, for a plastic-clay brick-making machine.

Burgess & Key, Newgate-street, London, for a grass mowing machine.

Messrs. Druce and Thompson were the Judges of Mowing Machines.

HIGHLY COMMENDED.

Holmes & Sons, Norwich, for a new portable saw-bench.

Henry Bridges, Oxford-street, London, for variety of improved butter prints.

John Cartwright, Shrewsbury, for clod-crushers.

Holmes & Son, Norwich, for rollers on light land.

COMMENDED.

B. Goulding, Leicester, for light land plough.

Thomas Johnson & Sons, Leicester, for a collection of garden seats, ornamental vases, &c.

James Woods & Sons, Stowmarket, for cabinet mangle.

John Warner & Sons, Jewin-street, London, for a collection of hydraulic machinery.

Priest & Woolnough, Kingston-on-Thames, for turnip duster and fly-destroyer.

Mapplebeck & Lowe, Birmingham, for collection of articles.

Hill & Smith, Dudley, for their collection, particularly of gates and fence.

Francis Morton, James-street, Liverpool, for wire-strainer and fencing apparatus.

Thomas Scragg, Calveley, for three sets of draining pipes.

John Robinson, Nuneaton, for three sets of draining pipes.

John Whitehead, Preston, for hand draining tile and brick machine.

Benjamin Fowler, Whitefriars-street, London, for pump foot-piece valve.

Burgess & Key, Newgate-street, London, for revolving brushes for destroying insects.

Robert Maynard, Whittlesford, for dibbling machine.

A. & E. Crosskill, Beverley, for an improvement in discharging liquid manure.

S. & E. Ransomes, Ipswich, for Argand fire bars.

Perry & Son, Bilston, for exhibition of iron gates, fences, trays, and other articles.

Trustees of William Crosskill, Beverley, for show of carts, carriages, wheels, &c.

Benjamin Heel, Warwick, for cooperage.

Peyton & Clark, Birmingham, for assortment of tools.

The St. Pancras Iron Works, Pancras-road, London, for stable fittings and general collection.

Barrett, Exall, and Andrewes, Reading, for show of machines.

William Roberts, Northampton, for a collection of ornamental chairs and other articles.

James Comins, Southmolton, for harrows for light land.

Page & Co., Bedford, harrows for heavy land.

Hugh Carson, Warminster, for cultivator for light land.

Woods & Son, Stowmarket, for roller for light land.

Coleman & Son, Chelmsford, for clod-crusher.

William C. Cambridge, Bristol, for chain harrows.

STEWARDS OF IMPLEMENTS.

Mr. Barnett, Stratton Park, Biggleswade.
Mr. H. B. Caldwell, Lackham House, Chippenham.
Mr. Edward Pope, Great Toller, Newton, Dorset.

PRIZES FOR CHEESE.

JUDGE.—James Watson, Birmingham.

CHAMPION PRIZE OF £30

Four cheeses, not less than 34lbs. weight each, entered in any of the classes.

The prize to John M. Baker, of Dordon Hall, Atherstone, Warwick.

COLOURED CHEESES made in 1858.

Four coloured cheeses not less than 35lbs. weight each.

Prize of £20, John A. Beale, of Brockhurst, Lutterworth.

UNCOLOURED CHEESES made in 1858.

Four uncoloured cheeses not less than 35lbs. weight each.

First prize of £20, Thomas Haddon, Hampton Lucy, Warwick.

Second of £15 withheld for want of sufficient merit.

COLOURED CHEESES made in 1858.

Four coloured cheeses not less than 25lbs. and under 35lbs. weight each.

First prize of £15, George Thomas Spokes, Little Lawford, Rugby Warwick.

Second of £10, Thomas Satchwell, Hernfield House, Knowle, Birmingham.

UNCOLOURED CHEESES.

Four uncoloured cheeses not less than 25lbs. and under 35lbs. weight each.

First prize of £15, and second of £10, withheld for want of sufficient merit.

PRIZES FOR WOOL.

JUDGES.—Thomas Clayton.
H. B. Hughes.

SIX FLEECES OF LEICESTER WOOL.

The prize of £10, George Reading, Priors Hardwick, Stockton, Rugby.

SIX FLEECES OF SOUTHDOWN WOOL.

The prize of £10, the Duke of Richmond, Goodwood, Chichester.

SIX FLEECES OF GLOUCESTER WOOL.

The prize of £10, Samuel Pratt, Bubbenhall, Kenilworth, Warwick.

SIX FLEECES OF SHROPSHIRE OR MIXED WOOL.

The prize of £10, Thomas Horton, Harnage Grange, Shrewsbury, Salop.

STEWARD OF CHEESE AND WOOL.

Mr. Pain, Laverstock Hill, Salisbury.

DIRECTOR OF THE SHOW AND GENERAL ARRANGEMENTS.

Mr. B. T. Brandreth Gibbs, Half-moon Street, Piccadilly, London.

THE GENERAL MEETING

was held at the Shire Hall on the Friday morning, July 15, at ten o'clock; Lord Walsingham, the President elect, in the chair. There were also present—Lord Berners, Lord Leigh (Lord Lieutenant of Warwickshire), Sir W. W. Wynn, Rev. C. T. James, Messrs. Humberstone, M.P., Barnett, Caldwell, Pope, Fisher Hobbs, Professor Simonds, Jonas Webb, B. T. Gibbs, J. Shuttleworth, G. P. Tuxford, S. Sidney, R. Smith, N. G. Barthropp, H. Corbet, R. Milward, C. Wren Hoskyns, S. Skelton, H. Thurnall, J. Clayden, J. Odams, J. Pain (Salisbury), S. Druce, H. Manning, James Howard, Howard Reed, H. Middleton, J. Moore, R. L. Hunt, C.E., Amos, C.E., R. Westbrook Baker, Ryder, Aldershow, Mauley, Cohen, Lowe, &c.

Lord WALSINGHAM had received a letter from the Duke of Marlborough, excusing himself on the ground of being chairman of a committee of the House of Lords, a meeting of which he had to go up to town to attend, and which would prevent his attendance at the annual meeting of the Society.

Mr. SIDNEY complained there were not more practical men in the Council, and that the important open meetings were held at times that operated least to the benefit of the Society. With respect to the weekly meetings held on Wednesdays, no notice was given of them, the reporters were not admitted, and the reports were frequently not made public until twelve or fifteen months after the proceedings. Then the annual meetings were held on a Friday, when a large number of persons had left the town where they were held, and when there could not be sufficient discussion of anything of importance. He further complained of the constitution of the Council. It was composed of twenty-one peers, twenty-nine sons of peers, baronets, or county members, twelve squires, five lawyers—not yet arrived at the dignity of squires, though they might possibly do so—four engineers and implement-makers, one hon. director, twelve breeders or stockholders, and two mayors. He adverted to the deficiency of £2,000, and complained that the Finance Committee were unwilling to afford proper information. He could hardly understand the extraordinary course adopted by the Council in proposing a vote of thanks to gentlemen who not only took upon themselves the office of Finance Committee, but rejected any interference on the part of members of the Society, and, still, so neglected their duties that they were finally compelled to resign. A loss like that to which he had referred might have occurred in the common order of things, but it was absurd to suppose that when any subscriber simply ventured to make a suggestion, such suggestion should be treated as an impertinence. The late Finance Committee had practically monopolised all the management of two parts of the Society. When he went to the internal management, he found there just about the same number of subscribers as when the Society was established twenty years ago. Since that time the farming interest had been doubled and trebled, and farmers themselves had increased in intelligence, but the number of subscribers had not increased. Why were there not more members in the Society? Those active steps and pains were not taken that should be taken. Figures spoke much stronger than words. It should not be forgotten that the Council should be representative: men grew old, and if the same members remained in it without the infusion of new blood, its vigour failed. They did not find the practical farmers in the Council, and why not? It was not in consequence of any opposition raised by the noblemen who honoured the Society by their countenance, but just for the reason he had mentioned. The affairs of the Society were monopolised by an exclusive clique—men actuated by an exclusive love of power excluded other persons whose assistance would be of great benefit. Some gentlemen might think that was very strong language—very personal; but, when they had just lost £2,000, the matter ran beyond the ordinary reins. He did not make use of any language that was not strictly admissible. The question was not as to what the Society had done, but as to its ability to have done a great deal more than it had done. The gentlemen who served them as Stewards didn't rise to be Vice-presidents. A man must be of a certain class. He would not mention names. But they had only to look to the Finance Committee, who certainly could not have been chosen for their skill in agriculture, for their literary ability, or even their social position. Gentlemen had turned round and said, that farmers who might be induced to join that association would not attend to its duties. No assertion was more unfounded. The Central Farmers' Club had produced papers on agriculture which had quite as much effect as any paper in the *Journal* of the Society. That class was open to choose from; and it was well known how well a comparatively small committee there attended to their duties. The Wednesday's meetings should have greater publicity. He believed that, as men worked the harder for a little fame, they would get many papers from practical men, if they could be communicated to the world. There was another point to which he would refer. He believed the time had arrived when an inquiry should be made as to what had been the progress in the several departments, of implements, stock, and cultivation. They might get answers to those inquiries simultaneously, and then a report should be published as to what had been the progress since the Society was founded in 1839 till now. He was no puller down. He only wanted to see the Society worthy of its position. As possessing to some extent the confidence of the agricultural world, as a writer of some little merit, and as a sincere observer, he considered that he possessed claims to be heard.

Lord BERNERS proposed a vote of thanks to their friends at Warwick for the assistance they had rendered the Society during the Show; which Sir WATKIN WYNN seconded.

Lord LEIGH proposed that the best thanks of the meeting be given to the Railway Companies. He could speak personally of the very kind attention which the Companies had paid to any request which had been made to them; and he felt quite sure that the proposition he had made would be carried unanimously.

Mr. Chandos Wren Hoskyns had very great pleasure in seconding the proposition. In these days, the railways had become a valuable arm in the assistance of the development of agriculture. He could hardly state a more self-evident proposition than that the great exhibitions of that Society could not take place but for the railways. (Hear, hear.) At that moment, when any competition arose as to the locality for holding the Society's Show, the first question that arose was as to the railway accommodation. Such a county as that of Hereford only required an increase of railway accommodation to become a most interesting locality, with its hop grounds and other attributes, for a meeting of that Society. He did think that a grateful recognition of their services was pre-eminently due to the liberality and ready and earnest aid which the Society had received from the Railway Companies.

Mr. Lowe, in reference to the railways, complained that no extra trains had been put on for the working-classes. The full fare had been demanded for conveyance of mechanics from the immense district of Birmingham. The excuse which he understood was given, was that the two Companies had an understanding not to run two excursions in one week. That, in his opinion, was a very extraordinary excuse, and he believed the town of Birmingham was much displeased at the conduct of the Companies in the matter he had referred to.

The resolution for a vote of thanks to the Railway Companies was then carried, two or three hands being held up against it, and about four for it.

Mr. Humberstone proposed that the best thanks of the meeting be given to Lord Leigh, and the gentlemen composing the members of the Local Committee at Warwick and neighbourhood, for the assistance they had rendered. He would simply remind the meeting of the liberality with which those gentlemen came forward to assist the operations of the Society at Warwick, and of the long list of handsome local prizes, which had been so well represented in the show-yard. They had further provided a trial ground, and a most admirable situation—one of the best, perhaps, that they had ever had. In short, those gentlemen, he was sure, had rendered all the assistance they possibly could, in carrying out the great exhibition of 1859. Speaking of the Society generally, he must say that he hoped they were progressing in regard to their external Show very satisfactorily. The Show this year was certainly a very admirable one, and, he believed in particular, that of implements had exceeded the Show of any previous year. He hoped that the results here, as in every other district where the Society had been, would be a great trade—he might call it—for the sale of agricultural implements. That invariable result of itself showed the great stimulus which the meetings of that Society gave to agriculture. With regard to another subject which had been alluded to, namely, the internal management of the Society, he did think that was a subject quite worthy of their attention, and the suggestion was by no means a bad one, of taking advantage of the opportunity that might be afforded to them by the recess of directing their attention to the subject.

Mr. Milward seconded the vote of thanks to the Warwick Committee, and Lord Leigh replied. He felt that he was almost presumptuous in doing so, inasmuch as the labour of the Local Committee had not fallen upon him to the degree in which it had upon others. Upon Messrs. Moore and Margetts, the Honorary Secretaries, he could safely say, as a member of that committee, that the success of the meeting—as far as Warwick was concerned—had mainly rested; and to them was due the praise.

Mr. Jonas Webb proposed, and Mr. Sidney seconded, a vote of thanks to the Duke of Marlborough, the President of last year.

Mr. C. Barnett had much pleasure in expressing his own cordial thanks, and those of the meeting, to those gentlemen who had taken upon themselves, on that occasion, the very onerous duty of judges. They ought to be very thankful in having obtained the services of such men as the Judges of the Show to perform that office; and to those gentlemen the best thanks of the meeting were due. He would not detain them for many minutes; but, being upon his legs, he would refer to one subject. It was not his intention to follow Mr. Sidney through his speech; but, as an old member of the Council, he did think it right for him to say that some of the suggestions which Mr. Sidney had made should have his consideration: and if, upon mature reflection, he thought the Society would in any way be benefited by any of those suggestions being carried out, he should endeavour to bring them before the Council.

Mr. Robert Smith, Steward, seconded the vote of thanks to the Judges. He took that opportunity of saying that no person could value their services so much as the men who worked with them in the capacity of Stewards of the Yard. If persons were only to see the pains which the Judges took to arrive at a correct result—having the animals led out and back again, making their minutes in their note-books—he was sure that less would have been said by the observers, when they went round the yard, than had been said on that occasion.

Mr. W. Fisher Hobbs had never before seen gentlemen take such trouble in the award of their prizes as on the present occasion; and that, if the Judges had failed in giving satisfaction, it was not their fault.

Mr. Clayden, as acting in the capacity of one of the Judges, begged to return his thanks for the compliment the meeting had passed to the Judges. It was too much to suppose that the Judges could on every occasion give universal satisfaction; but he could assure the meeting that his endeavour had been to discharge his duty faithfully, doing justice to each competitor. The duty of a Judge, as they were aware, was a most onerous one. He could say that those present, with whom he had had the honour of acting, had endeavoured faithfully to discharge their duties; and he believed the same remark would apply to the Judges in the other departments. He begged to congratulate the Society on the present Show: it was a most splendid one.

At this point the Rev. C. James was also called for. He must congratulate the meeting on the description of stock which had been exhibited at the show of 1859. It appeared to him that they had more of the true types of cattle, animals which were wanted to exhibit as models of the various kinds. It appeared to him that they were freer from the coarse offal than at any exhibition of the Society which he had witnessed. He could especially congratulate the Society on what to him was a most significant fact, the increased attention, inquiry, and intelligence which the young men, the sons of farmers, exhibited in discovering the principles of the implements to which prizes were awarded, and in their examination of the stock shown to them as models. With respect to another subject in reference to that Society, he trusted that bye-gones would be bye-gones; and he only hoped that no district in England would be unrepresented in the Council—that was a most important feature to be effected. Standing as they did, geographically, in the very centre of England, comprising in this country a great mechanical emporium, it was deeply regretted that that body of mechanics had not been enabled to have witnessed the implement department of that show. It was to be lamented on this account, that the improvement in machinery, mechanism, the sciences and arts, rendered an increased education of the working classes necessary.

Mr. Pain said that a speech had been presented to their notice by Mr. Sidney—a speech which was annually contributed to that meeting, and which, he was sure, was always received with that deference to which that gentleman was entitled. He had very properly alluded to the Council of the Society, and he had made an observation which he (Mr. Pain) thought he was called upon to notice. He had suggested that the Council was constituted of noblemen, of some practical farmers, and of two mayors (laughter). He (Mr. Pain) had the honour of being considered as one of those mayors. He had the honour, in his humble way, of entertaining the Society at Salisbury; and he did it to the best of his ability. (Hear, hear). It might also be said that similar kindness and attention was contributed by the Mayor of Chester. One of the Society's oldest members, and ablest men belonging to the Society, did think proper to remark in a jocular manner that no persons were so entitled to take the distinction awarded to the best "mares" for agricultural purposes as the Mayors of Chester and Salisbury. (Loud laughter). He (Mr. Pain) was very much obliged to Mr. Sidney for condescending to notice him as a Mayor. (Renewed laughter). He was elected in 1857 a member of the Council, in compliment to Salisbury. He naturally retired when his term expired, but had the honour of being re-elected. And he must say in defence of himself and the Mayor of Chester—that although Mayors then they were not so now. They endeavoured, as members of that Council, to do their duty. It did not signify to him whether he was considered merely as Mayor or member of the Council—he performed the duty as a member, as an independent man—he denied that he was a member of any clique (Hear). He repeated he did his duty, and when the Council said otherwise he would resign his position. He believed his worthy friend, the late Mayor of Chester, would do his duty in the same way (cheers). Lord Leigh did not see why a Mayor of a town should not be conversant with agriculture. He knew for a fact that one of the best agriculturists of this county had been thrice elected Mayor of Warwick.

Lord BERNERS then proposed a vote of thanks to the noble Chairman. He congratulated the meeting that in the noble lord who occupied the chair they had one practically acquainted with all the departments of agriculture.

The proposition was seconded by Mr. Pain, and Lord Walsingham returned thanks. He thought that, from the observations he had heard in the yard, he might congratulate the members of the Society on having had a most capital meeting. It was one of the best meetings they had had, both as regards implements and stock exhibited, and the attendance. He felt sure that Mr. Sidney must be gratified by the observations which his speech had elicited. Those observations showed that on the part of the members present, there was no unwillingness to listen to any suggestion which was made for the general benefit of the Royal Society. With respect to one observation as to the want of a sufficient number of practical men in the Council—he had always observed, since he had belonged to the Council, that there had ever been a strong wish to obtain the services of practical men. When the name of a practical farmer was brought before the Council, there had never been any unwillingness to elect him to the Council. There were several practical men members of the Council. The Council was by no means destitute of information to be obtained from such men, and he was sure any suggestion from them would ever receive the best consideration of the Council.

Mr. MILWARD then proposed a vote of thanks to Mr. Gibbs. He would remind the meeting that for a considerable time Mr. Gibbs had been rendering great assistance to the Society. In other meetings, Mr. Gibbs had rendered great service as Honorary Director of the Show; but this year, owing to an unfortunate circumstance, he had been for weeks doing the whole business of the Society. He (Mr. Milward) was quite sure that the meeting would agree with him in thanking Mr. Gibbs most cordially for the duties he had performed.

Mr. CALDWELL seconded the proposition. Without Mr. Gibbs he did not know what the Judges and Stewards would have done. With regard to getting practical farmers in the Council, he could assure them that it had been his constant and earnest endeavour to do so, and at many agricultural meetings he had mooted the desirability of it; but the farmers say the distances are so great they cannot leave their businesses. Further, out of a list of fifty or sixty names of judges they obtained so small a number that the Stewards were frightened to death lest the work should not be done. And, if the same excuse were made by practical farmers to undertaking other duties, as undertaking those of judges—he must say that a great difficulty would be found in getting them to act.

Mr. GIBBS was extremely obliged for the vote of thanks. An emergency suddenly arose, at a time of year when he was able to devote some of his unemployed time to the Society's service. Having taken deep interest in the Society for twenty-one years, he felt that he should not have been doing his duty if he had shrunk from coming forward on that occasion. He had, therefore, placed his services humbly at the disposal of the Society as honorary director of the show and secretary; and if he had succeeded in his endeavours he was fully repaid.

THE EXHIBITION AND TRIAL OF IMPLEMENTS.

There is no section of the Royal Agricultural Society's show which has obtained such a hold upon the public mind as the implement department. It has gone on and progressed so rapidly from year to year, and to such a degree, that it has now become, perhaps, the most attractive and interesting feature of the meetings. It is also one of very great importance, inasmuch as the Society has now mainly devolved upon it the responsibility of the trial and proof of the practical value of the various implements exhibited—some other societies having given up the prize system for agricultural implements. This certainly imposes a very onerous duty upon the Royal Society and the officers and judges engaged, and we know from experience that notwithstanding every effort, it is not always that a series of satisfactory trials can be conducted. There are so many contingencies to meet at the time, so many little matters which cannot be foreseen by the most sagacious steward or, it may be, the most careful exhibitor, which have to be provided for. Moreover, the judges' views and requirements vary, and are often contrary to the expectations and provisions made for the various trials. They require the implement under trial to be shown and necessarily tested under its several phases, which mostly have to be provided for at the moment, and often cause great delay, so that the actual time devoted to the trial is frequently very limited. Not that a competent judge would or ought to require any lengthened period for examination; it is only required to have the implement rightly adjusted and properly set to work in an appropriate and suitable manner. The decision is then soon arrived at. Another marked feature of the implement show is that it has become a very extensive and inviting emporium or mart, and a vast amount of business in the sale of implements and machinery is transacted. The subjoined tabular statement will tend to show the desire manifested by influential manufacturers to take advantage of the Society's shows:—

ARTICLES EXHIBITED.	Lincoln, 1854.	Carlisle, 1855.	Chelmsford, 1856.	Salisbury, 1857.	Chester, 1858.	Warwick, 1859.
Number of Exhibitors and in Articles as below	130	118	147	154	193	236
Steam ploughs or cultivators	..	4	6	8	13	16
Steam engines	24	18	31	23	43	121
Steam traction engines	..	1	1	4	2	5
Drills	30	14	18	23	47	108
Manure distributors	9	3	5	13	11	7
Horse hoes	21	10	24	26	34	67
Hay machines	4	6	10	11	12	16
Horse rakes	14	8	17	22	24	44
Reaping and mowing machines	12	9	5	12	..	15
Carts and waggons	28	14	33	34	28	72
Ploughs	27	19	23	26	40	225
Subsoilers	17	8	10	8	12	32
Cultivators, &c.	25	23	28	20	15	92
Clodcrushers and rollers	24	17	25	18	24	115
Harrows	16	9	17	19	32	108
Draining tools, &c.	4	1	8	7	8	43
Thrashing machines	26	21	33	31	..	73
Corn-dressing machines	24	18	31	31	29	61
Chaff-cutters	33	22	46	37	53	168
Linseed crushers or mills	20	14	25	15	22	41
Turnip-cutters, &c.	18	20	32	30	27	58
Oilcake breakers	20	12	23	16	32	54
Churns	12	7	10	10	20	92
Brick and tile machines	11	7	9	5	6	25
Mills	..	..	..	..	..	40
Bone mills	2	..	2	..	7	9
Cheese-making apparatus	..	..	..	..	5	16
Cheese presses	4	5	5	..	22	22
Root pulpers	..	..	..	..	28	63
Screening machines	3	..	..	..	16	15

It will be as well to first notice those implements that were selected for trial. Beginning with the

PLOUGHS,

which must be considered under three heads—light, general purpose, and heavy land ploughs.

In the light-land class there were 15 entries for trial. On running through them previously, we did not notice much originality. A new principle, or to speak more properly, a revived principle, was noticeable in Messrs. Hornsby's plough, consisting in a convexity of the breast. It certainly made good, very good work, having a capital harrow edge. It is light, and well made, with nicely-adjusted wheel fastenings. Messrs. Ransomes' struck us as the best ever seen of their make; but the wheel fastenings are very slight. The arrangement for the adjustable lever neck is decidedly clever; the work regular and good throughout; square furrow-sole. Messrs. J. and F. Howard competed with a plough, as usual well got up, into which a few improvements in detail were introduced, especially that which gives a level surface to the sole of the share. The work made by this implement, according to established dictum, with regard to rectangular furrows, ranked highly. Messrs. Hensman's plough is a strong serviceable implement; but its work wanted regularity. Busby's plough would have made very good work had it not been so cramped. The implement itself is exceedingly well made. The "Eclipse" Plough, belonging to Page, of Bedford, made broken work; and that by Ball wanted regularity, and a square furrow-sole; the wheel-fastenings defective. Goulding, of Leicester, competed with a good plough; but the work was crowded, and but little harrow edge given. The other competitors were—Law, of Shettlestone; Mason, of Stanford; Reeves, of Bratton; Tasker and Son, Walter and Haslam, whose new wheel-fastenings are expensive, and soon liable to disorder; Bruce, of Teddington; and Oliver Maggs. Should this brief criticism on the quality of work not quite accord with the award of prizes, our readers should remember that good work does not always decide the matter; there are other considerations, such as draught and price. The following table may, perhaps, solve difficulties that have arisen to some minds:—

Name.	Traction	Length.	Dimension of Furrows.	Price. £ s. d.
Busby	135.0	175	6 by 9	4 4 0
Hornsby	139.76	175	6 .. 9	4 17 0
Reeves........	120.625	175	6 ... 10	4 16 6
Tasker	136.54	175	6 .. 11	5 8 6
Wallis & Haslam	129.9	175	6 .. 10	3 18 6
Bruce	132.95	175	6½ .. 11	4 15 0
Goulding......	136.35	175	6½ .. 9½	5 0 0
Page	132.95	175	6 .. 10	3 10 0
Ball..........	144.	175	6 .. 9½	4 14 6
Hensman......	142.3	175	6 .. 9½	4 4 0
Ransome......	135.93	175	6 .. 9	4 19 0
Second trial..	137.0	175	6 .. 9	
Howard	138.46	175	6 .. 9	4 17 0
Second trial..	143.1	175	6 .. 9	
Maggs	143.33	175	6½ .. 9½	4 17 6

THE GENERAL PURPOSE PLOUGHS.

The ploughs in this class were tried on Monday, July 11, but not decided upon till Tuesday. They were tested in two fields; thirteen in number, but several tired of the contest before the shadows began to creep slow and long about the evening of the first day. When Hornsby's completed their work on the Tuesday, it was decided to be perfect, and so great an interest was excited, that it became difficult to restrain the public within those bounds which were generally preserved. Ransomes' work on the second day was scarcely equal to that of the first. Rules were applied, the dynamometer was anxiously watched, and little conferences were held amongst the various competitors as to the advantage gained or lost as each furrow was guided to and laid upon its forerunner. The scene was a very interesting one, and though sides were warmly taken, temper was well kept. When Howard's plough set up its ridge, the excitement increased, and as the furrows were deposited by the breast in straight lines, at a regular angle, leaving a clean cut bottom, difficulty to keep the curious from following became greater. Ball's plough, too, made good work.

The results were as follows:

Name.	Distnc. Yards.	Time. min.	Time. sec.	Units of Power.	Dimen. of Slice. Inches.	Price. £. s. d.
Hornsby..	80	1	45	120·2	7 by 9	5 0 6
2nd trial.	80	1	40	122·2	7 .. 9	
Busby....	80	1	20	117·1	7 .. 8	4 17 6
2nd trial.	80	1	20	117·5	7 .. 9	
Hensman...	80	1	8	120.663	7 .. 9	5 6 0
2nd trial.	80	1	23	115·80	7 .. 9	
Ransome..	80		56	117·85	7 .. 9	5 2 0
2nd trial.	80	1	40	118·42	7 .. 9	
Howard ..	80	1	35	123·35	7 .. 9	5 2 6
2nd trial.	80	1	27	120·19	7 .. 9	

THE HEAVY LAND PLOUGHS.

In this class there were fewer competitors. The ploughs are gigantic implements, pulling four horses very hard. Some of the breasts are more than six feet in length, and will deal with any furrow, that six or eight horses, were it possible economically to employ them, could cut from the solid ground. Ransomes' implement opened the way with some broken, and not very satisfactory work. It was followed by Howard's, making splendid work; but masterly as this was, it was excelled by Hornsby's plough, to which the public voice made the instant award.

The results are as follows:

Name.	Distnc. Yards.	Time Seconds.	Units of Power.	Dimen. of Slice. Inches.	Price. £. s. d.
Hornsby..	50	50	132·38	8 by 12	6 12 6
2nd trial.	50	45	130·1	8 .. 12	
Ball......	50	50	137·33	8 .. 11	5 17 0
Busby....	50	50	137·	8 .. 11	5 16 6
2nd....	50	42	135·6	8 .. 11	
Ransome..	50	45	138·475	8½ .. 12	7 15 0
2nd....	50	55	135·7		
Howard ..	50	74	132·25	8½ .. 12	6 15 6
2nd....	50	50	126·8	8½ .. 12	

Visitors to Warwick would almost be led to think that the terms of the Pacific Treaty between France and Austria, and the fate of Italy, were as nothing in the balance, to the award of prizes to the ploughs. Every body was talking about the triumph of Hornsby. The adherents of the various competitors could not help exhibiting some little feeling. Our forefathers would probably have proved their furrows under like circumstances by an appeal to their fists; but customs are changed, and the principle of mediation being adopted, the cool, calculating, impartial dynamometer stepped in between the contending parties, and the decision that might have been come to by force, was quietly determined by figures.

At this distance of time it is possible for a reporter to look more calmly at the matter, and regarding the question at his ease, with a refreshing breeze playing about his temples, he cries, "And who cares? Why all this ado? Why should a discussion about the lines of a plough's breast lay the world by the ears, at a time when we are preparing to abandon the plough, as it is, altogether, in favour of some happy cross between the plough and cultivator?" More attention might have been concentrated upon steam-power as applied to the cultivation of land. A long and steady test should have been given to the various systems, a test that should have extended over three or four days, the working being continuous. We so seldom find Fowler and Smith together under such favourable circumstances for trial, that one naturally wished to prolong a contest, from which, short as it was, considerable results were obtained. The three days spent upon plough trials show that in the Light Land Class,a plough which re-asserts a principle that has been abandoned, and requires a greater power to turn a smaller quantity of soil than Ransomes', receives the prize. At least this is the conclusion to which most people seemed to come; but it appears that it was not altogether correct, as on looking at the table we see the difference of price must have had some influence, in addition to the admirable work itself. The straightness of the furrow has not much to do with it: that depends on the skill of the ploughman, who is not an element of consideration. This consideration in the heavy land trial must, however, have had more weight than it should have had, seeing that the draught of Hornsby's plough, which took the first prize, is represented by the figures 131, 19; and Howard's, which took the second prize, by the figures 129, 16; there being only 3s. difference in the price. From what can be gathered of the grounds of judgment, we are led to consider that the judges had no idea at all of conveying to the public a recommendation of the convex breast, else Hornsby's plough would have gained the first prize in the general purpose class, especially when we find that it has an advantage both in draught and price, although the slightest possible. Commending as we do the spirit of Messrs. Hornby, and thanking them for reducing prices, and pushing established firms to further improvement, it is not our impression that the form of their mould-board will be found to assist the horses, or to reduce the draught on wet clay lands.

The turnwrest plough did not work well. John Eddy's took the prize, and Ransomes' received a high commendation.

The paring plough, patented by Woofe, and exhibited by Snowdon, is a most effective implement, but the ground was so hard that it was not well shown.

Eddington's draining plough was tried on the heavy land. It is the somewhat cumbrous-looking implement first brought into public notice at the Lincoln meeting, although, it had been previously known under various modifications. The windlass is very powerful, and is made more so by the steam-engine itself being run upon the platform prepared for it on its top, and by which means it is held more securely in its place, and thus becomes the fulcrum by which the whole is moved and work performed, *i. e.*, the engine and windlass had to propel themselves along the headland to the point of draught requisite to draw up the plough. This is taken to the further end of the field by a horse; an oblong hole is dug, into which the immense iron-coulter is lowered, having a plug or shoe at its bottom to make the orifice in which the draining-pipes are to be deposited; these pipes are strung upon a long rope, which is then attached to the bottom of the coulter, and they are replenished at fifty-yard intervals, where holes are prepared for the purpose. A simple contrivance facilitates the renewing of the pipes. The soil is moved by the ponderous machine to the distance of several feet on each side, this of itself being of considerable advantage in opening out crevices for lateral drainage.

HARROWS.

The entries were very large. There are no very noticeable deviations from the old form, introduced as Armstrong's patent "Howard's harrows," which have been imitated in principle in every conceivable manner. There is not that marked improvement in harrows as in ploughs—except, indeed, we recognise chain harrows under this head, which are amongst the most useful introductions for the cleansing of foul land, and the harrowing of seeds and grass land. Their action amongst couch or twitch is to leave it behind, without manual help, in large rolls, completely divested of mould, and ready to be immediately ignited. The saving effected during the two last years by their employment has been very great. With all respect to those gentlemen who gave the awards, but who evidently had had no previous experience with chain harrows, we think that Cambridge's self-expanding harrows worked best. There are two special advantages about them not common to the others—the fixed link, and their adaptability to different sorts of work by the division of the harrows, so that it can be used with one horse or two.

What a variety of harrows, possible and impossible, to suit all possible soils, under all impossible circumstances! Manifold as the tastes of inventors were the skews and skriggles of harrow beams, with joints here and joints there, to accommodate the teeth to inequalities of soil. Everybody wanted a trial, and as nobody believed in the superiority of any other harrows to his own, of course the judges were obliged to be impartial and patient. The day was hot, the dust obeyed no breeze, and the trial was effected on ground in such a state as to give rather difficult *data* for judgment. Messrs. J. and F. Howard took the first and second prize, and Messrs. Page the third, for light harrows; whilst for heavy harrows the first prize was awarded to Messrs. Howard, the second to Messrs. Page, and the third to Messrs. Ransomes.

Our attention was caught by an entirely new form amongst these implements, which should have worked better than it did—"Delta's Patent Harrow," exhibited by Law, of Shettlestone. It has met, we understand, with great success in the North; and there is something about it that creates in us a belief as to its utility. The idea which seems to have been followed out in this case was to make a harrow that should be perfectly steady and firm in line of draught, yet free to give to the undulations of surface, now working on the crest of the ridge, and now in the furrow. Another object is to possess in the same harrow two or more smaller harrows readily applicable for a single horse. The main beams in the line of the draught are hinged together, forming the frame. Two bulls in each are braced out from the frame at an angle of about 30 degrees, and contain the teeth. The width of the one-horse harrow is 4 feet 8 inches. For two horses two are yoked together. They should work steadily; the wings are easily raised for cleaning; they pack in small compass, and are less in price than most others.

CULTIVATORS.

The trials of these implements created much amusement to the public, and not a little anxiety to the inventors. The ground was very hard, and very tenacious where the cultivators for heavy land were shown. In Warwickshire it appears to be the custom to work four horses at length, and no contrivance was adopted to bring the animals nearer to their work, consequently a great deal of confusion ensued. The horses started irregularly; or when they pulled, pulled with such a violent sudden strain as to break a stay or snap a share, and when the implement did not give way the gears did. The Stewards had hard work to keep things going at all. We give results of trial—

	Cutting width. ft.	in.	Power.	Prize.
Bentall	4	4	4·8	1st
Carson	4	9	6·7	
Clay	4	5	3·8	3rd
Coleman........	3	5	4·39	2nd
Crosskill........	4	8	5·2	

The trial of heavy land cultivators was made unfortunately without the dynamometer, so that very little value can be attached to it.

Bentall's, with a cut of 4ft. 6in., worked the horses very hard, and laid the ground to our mind too flat. It received the second prize.

Coleman's, a 7-tined cultivator, cutting 5ft. 3in., worked six horses hard, but left the land in a better state. First prize.

Warren's—the cut 4ft. 3in. wide, four horses in length—abandoned as hopeless.

Clay's—four horses, 4ft. 5in. cut—work well done; but disqualified by share breaking. The arrangement of this cultivator attracted general attention. The tines are fixed in a very simple manner upon bulls, running at right angles to the line of draught. These bulls work within the frame in carriages, being moved partly round at pleasure by the action of levers and arms. The teeth, instead of being forced forward at the turn, to release the frame-work, are lifted backwards, and so enables the horses to turn with the greatest ease without distress or stoppage to the horses. Messrs. Ransomes Biddle's is too well known to require notice. It received the third prize.

CLOD CRUSHERS AND ROLLERS.

The competitors in this class were sixteen in number. The land was in such a state that very little could be determined with respect to the work done. On passing over the land after the trial was over, it took a keen eye to detect any difference between the work done by a plain roll or a clod crusher, or between a clod crusher weighing 15 cwt. and one weighing 25 cwt. The land should have been more thoroughly harrowed before the rolls were employed, and recourse should have been had to the dynamometer. The trustees of Mr. Crosskill received the first prize for a field roller, consisting of nine cast-iron cylinders, 2ft. 8in in diameter, 8in. wide; weight 18 cwt. Price £14 10s.

Messrs. Hill and Smith exhibited two capital sheet-iron rollers, for which they took prizes; and Messrs. Holmes received a high commendation for the same appliance of sheet iron; one of these rolls weighing only 10 cwt., covering seven feet of ground, and with three feet diameter, can be purchased for £14. Ballast pigs are sent with it, if desired.

Messrs. A. and E. Crosskill receive a prize for their excellent clod-crusher, the wheels being of different diameters, to clean themselves. Cambridge's, to which a prize was given, has a notched wheel between the ribbed ones, of different diameters, so that it can be made a clod-crusher; or, by replacing the notched discs by the ribbed, into a drill roll. If one frame can thus be made to answer two purposes, expense is certainly saved.

MOWING MACHINES.

Three mowers entered upon this contest for a silver medal; one was a mower proper, and two were combined reapers and mowers. Burgess and Key's carried off the honours by general acclaim. The attendance was very large, and every one appeared satisfied that the work done by each machine was better than could be effected by scythes. A description of the prize machine is not here needed. Suffice it to say that the construction is much simplified, and instead of cast fingers, they are made now of wrought-iron. It cut the acre under the hour, and did not seem to work the horses hard. Of the two others, Woods' made the best work. Harwood's was heavy in draught, and cut too high.

STEAM CULTIVATORS.

It will be understood that Smith and Fowler and Howard, with their partizans, appeared in force upon Mr. Palmer's land last Saturday to prove themselves not simply good substitutes for horse labour: that point was settled last year at Chester. The point to be decided was, and yet is, what is the most economical and best application of steam power to the cultivation of the land? To decide this question these men stepped upon the trial field—truly a field of trial to many a perplexed inventor. It was nothing but a rivalry amongst the methods. It is usual with those who recount the performances of the "Chicken" and the "Tipton Slasher," to commence with a brief notice, first, of the appearance and condition of the pugilists. Allow us to do the same.

Imagine then the "Bruiser" entered by Romaine, a big-bellied fellow, with a knack of hitting round, and decidedly bad-winded. The pugilists entered by Howard, and Chandler, and Crowley, are for the most part gawky fellows, with loose muscle, but having the advantage in long range. Fowler backs the likeliest fellow of the three; more compact, tougher, and better for a long day. There is no mistake about him, his blows are well planted, and straight; in fact he means business.

Should our readers wish us to abandon the Fistiana style, and furnish a mechanical description of these machines, let them attend.

The extreme width of Romaine's rotary cultivator is 10 feet 6 inches, its extreme length is 18 feet, and its weight is 13 tons. It turns in its own length, upon main wheels 6 feet 6 inches in diameter, and 21 inches wide, being controlled by two guide wheels, 4 feet in diameter by 1 foot wide, placed beneath the smoke-box and the cistern. Behind, upon a horizontal axis, revolves a cylinder, 8 feet long and 2 feet 8 inches in diameter, armed with 33 tines, projecting 10 inches from the radius. This cylinder is attached by great iron arms to the axis of the travelling wheel, and is raised and lowered by means of steam cylinders. Spade husbandry is professed to be equalled, at one operation, by a nominal power of 12 horses, and the aid of only two men. Price £800.

Mr. Royd's Apparatus: A ten-horse power portable engine: the windlass with drums on vertical axis, 3 feet 6 inches diam., with friction box to save the rope in case of sudden strain; 1,760 yards of rope; two self-moving anchors, which are palpable infringements of Fowler's patent, the cutting wheels being zig-zag instead of plain, and therefore not so good. A balanced cultivator is worked with nine tines, six cutting 6 inches deep one way, and three subsoiling the same land 12 to 18 inches deep on the return journey. The men employed are three and one boy, and the price about £460.

Messrs. Chandler and Oliver's engine is a ten-horse double-cylinder, manufactured by Robey of Lincoln, having the windlass drums revolving on the hind travelling axle, and driven by gearing from the fly-wheel shaft. These drums carry one thousand yards of rope, which, when given off, passes through a double snatch block lying at right angles to the back of the engine, and from thence diverges to find the two snatch blocks at the extreme points of the implement's line of passage. It will be seen that the line of work is the base of a triangle, the sides of which are constantly diminishing. Smith's anchors, porters and snatch-blocks are used. The plough, carrying six furrows, three each way, is made by Messrs. J. and F. Howard, price £460. Were it not for the difficulty of moving the engine about with this extra weight of drums and rope, we here behold a good arrangement, and one that is a decided improvement upon the separate windlass. And this question of shifting becomes the more important, because the engine must always be placed in the middle of one side, and before the work can be crossed must be removed. The people employed are four men and one boy.

Messrs. Crowley, of Newport-Pagnell: The engine belonging to this apparatus is an eight-horse portable. The windlass consists of two drums on horizontal axes, being driven by pulleys placed between them. When both drums are out of gear, the belt is carried by a slack pulley, from which it is shifted by a simple contrivance right or left, and the engine keeps running. Smith's anchors, snatch-blocks, and porters are used, and to avoid the "turning bow" a sort of balance cultivator is introduced, which takes a long time turning. Five men and one boy are required; price £480.

Messrs. J. and F. Howard, of Bedford: It is not necessary to do more in describing this apparatus than to say the engine, a ten-horse double cylinder locomotive, is manufactured by Messrs. Clayton and Shuttleworth, The windlass drums are of larger dimensions than formerly, and the porters are improved, price £589. Five men and one boy are required.

John Fowler, of Cornhill: This apparatus consists of a ten-horse engine, with self-moving and reversing gear. Instead of the cumbersome windlass shown at Chester, he has now a driving drum snugly occupying the space between the bottom of the fire-box and the fore carriage, beneath the boiler, having two pulleys on either side, which enable the rope to make two three-quarter turns round the driving-drum, and so prevent its slipping. A pitch-wheel and chain give motion to the engine; in moving from one field to another, one horse only being used to guide. The anchor is on the same principle as of old; out the wheels are placed horizontally, and the metal work is of wrought-iron. 800 yards of rope are sent out, and two men and one boy are required. Price £703. One great improvement is in the cultivator, which is nothing more or less than a skeleton plough.

And now, having seen the competitors trotted out, what do you think? You have formed an estimate of their muscle, limb, and condition. Now, who is to be the winner? The ground is capital; not heavy land, but as hard and brittle as steel. The two-year-old clover-lea is cropped short. Whoever takes his share in this contest will be sure to make a clean breast of it. There was very little haste to begin on the part of some. Smith likes the ground, but his tackle is not arrived: Romaine collects a crowd, and industriously shows it that he can work with greater facility in air than in soil: Fowler's chicken takes a jaunty turn or so, to stretch himself, predetermining to himself at least the success of the morrow. The judges look as wise and formidable as badges and interleaved catalogues can make them; and the cheery face of the Consulting Engineer showed that he was at his ease, in fact, quite accustomed to the thing—so runs the extract from our note-book made at the time. The evening that closed the first day's trial, the last evening of the week, found Romaine's and Royd's "pets" fairly doubled up; Crowley's and Chandler's *hors de combat;* Smith's "smasher" squaring weakly, and Fowler's chicken decidedly cock of the field!

The trial of Monday being of more interest and importance, we will drop our figures, and describe plainly. The contest was renewed by Fowler, Smith, and Chandler, on a stiff badly-drained piece of seed-land, having an incline of 1 foot in 10, running from E. to W. The engines were placed on the upper headland, save Chandler's, and the implements worked N. and S. Fowler had two sets of apparatus, one working a plough and the other a cultivator, as on Saturday. Fowler's two implements broke up 2 roods 16 perches of ground per hour, at the depth of about 6 inches. The belts that were cleared by impartial spades across the work showed, in both cases, a clear level cut. The cultivator, with its great extended horned share, left the work in a splendid state, and the ploughs followed the curvature of the land in a way that surprised Mr. Fowler himself, all-confident as he was. Mr. Smith's work was, we think, a trifle deeper, not quite so roughly laid, nor did it display, after one operation, quite so good a bottom on being stripped. The quantity of land broke up in the hour was 2 roods 53 perches. But the judges could not make the award upon the quality of work performed. Another test must be brought to bear. The engines, both of the same make and power, must be put upon the break in the yard, the angle of the governors being the same as it was upon the ground, 12. After some delay the result obtained was this, that Fowler, taking 4 furrows 9 inches by 6, employed a power equal to 10 horses, and taking with his cultivator 40 inches, employed a power equal to 8 horses; whilst Smith, cutting 30 inches 8 or 9 inches deep, employed 11½-horse power. As some inaccuracy crept into the calculation this must be taken only as an *approximate* result; and our previous remarks with regard to the importance of a longer trial are quite borne out.

Supposing we allow the power employed to be equal in both cases, it must not be forgotten that Mr. Smith requires two operations to show such perfect work as Mr. Fowler shows at one. This fact alone will allow of even a more favourable view to be taken of the power employed by Mr. Smith, and yet leave Mr. Fowler the gainer. Apart from this conclusion, however, which shows that the Judges were perfectly correct in awarding the prize to Mr. Fowler, there is another point from which these different steam cultivators may be viewed. Although the prize apparatus is "the most economical application of steam power to the cultivation of the land," *it is not necessarily the best farmers' implement*—that is to say, under prudent circumstances, and for a certain period, taking into account the great number of 7 and 8-horse portable steam engines that are in the country, it is easy to see reasons to induce many farmers to prefer Howard's apparatus to Fowler's. At least the judges commended it.

We were sorry to see Romaine's rotary cultivator so practically inefficient, particularly after the great sums of money expended upon it. It sadly proves that there is a vast difference between inventing to live and living to invent.

Our work of observation being completed in the field, away we went to the implement yard—a little more than 12 acres covered with implements. We found several improvements in detail, very little novelty, and endless repetitions, the implements of the great firms being reproduced 40 times or more.

The great feature of the yard was in the class for

TILE AND BRICK-MAKING MACHINES.

All those who know what brick-making is, and the tediousness that attends the process, will be surprised that they can be made from dry clay, mixed as it may be with stones, or from raw silica, without a drop of water; the particles of which, by the expulsion of the air by an upward pressure, are made to cohere—dust one minute transformed to a dense, polished, jolly brick the next: that is the process. Bricks made in this way, and burnt, are lining our sewers and supporting our heaviest structures. The machine consists of two parts—the mill and the moulder. The mill is a large iron pan, with rollers that run on a stationary cross-shaft, which is carried in two side cheeks with slotted guides, so that the rollers may rise when the charge of clay is excessive. The dust so ground passes through gratings in the outer circle of the pan into a receptacle beneath, from whence it is raised by elevators to the hoppers above the moulding table. Motion being communicated, the tappit wheel turns the mould table the length of one mould. This action delivers two empty moulds under the hoppers to receive clay, delivers two bricks to the attendant, and gives a powerful upward pressure to the clay received in the moulds that have just left the hoppers. The table is then stationary, while the two eccentrics grind the final charge for two bricks. When the eccentric pistons are clear of the mould the tappit again turns the table one brick length, and the same action is renewed. The bricks delivered, are removed on a board, and go direct to the kiln, without being injured. The whole motions of this machine are performed by a pair of camb-wheels, the pressure being communicated by a pair of rollers running on the cambs with the mould pistons fixed on the shaft between them. With a six-horse power engine, and a table containing six moulds, 24 bricks per minute can be delivered, and a pressure equal to 330 tons can be exerted upon each brick. The ordinary clays, however, require only a pressure of 40 tons. This valuable machine is patented by Hersey and Walsh of Wakefield, and is exhibited by Mr. Chamberlain, of Kempsey. Its entire weight is 22 tons. Price £1,200. Silver medal awarded.

Mr. Chamberlain also shows another machine, invented and manufactured by the same firm, Messrs. Bradley and Craven, of Wakefield, for making bricks from plastic clay. The machine completes the pugging, moulding, pressing, and delivering in one operation, and makes about thirty-five per minute. The moulding and pressing are similar to those done by the machine above-named. He also exhibits a tile and brick machine, invented and manufactured by Messrs. Wright and Green, of Rugby. It forces through the face a beautiful column of clay, from which it cuts by its revolving wire, from a kind of reel, about 50 bricks per minute. The tiles or pipes in like proportion (second prize).

Mr. Whitehead's, of Preston, is a very effective and powerful machine for the manufacture of both pipes and bricks. The clay used by the machine requires much preparation, as indeed do all machines using the wire instead of the mould, which appears to be a distinctive designation of the two processes of brick-making (first prize).

Mr. Scragg exhibited a very useful hand-power machine, for making bricks, tiles, and pipes, to which the first prize was awarded. Mr. Whitehead's hand-power machine did not screen quite so well, but appears to be a very useful machine.

Messrs. Cockey and Sons, Page and Co., and Brown and May, also exhibited highly useful machines. This useful order of machinery has done much for agriculture in respect to drainage. The dry clay brick-maker is of more extended application.

Messrs. Parkes and Messrs. Mapplebeck and Co. took the first and second prizes for draining tools; truly a good selection, and one quite dangerous to approach without due precaution.

The atmospheric hammer was a curious and interesting object, collecting its crowds of admirers, who hearing its heavy "thud," of course flocked to see it. It was managed by vacuum in a very simple manner, and, with four-horse-power, gave a blow equal to 1 ton weight. A medal was awarded to it.

Messrs. J. Warner and Sons, of London, exhibited a highly useful collection of hydraulic machinery. Any one who wants to be gauged for a pump, that's the place to go to. The judges were quite right to commend them.

Who would not be "Fisherman," "Musjid," "Pantaloon," or "Black Eagle," to have such care bestowed upon one, as such favourites as these meet with at the hands of Cottam and Hallen, the managers of the St. Pancras Stable-fitting Works? One could almost resign oneself to oats and hay, in such airy, remote, odourless apartments. The wonder is how the grooms fare! Verily the brute gets more consideration than the human creature. For all that, the arrangements are very perfect, and worthy of great commendation.

Now that the black-jack and fly are destroying the turnip, and also the farmers' hope of a good store of winter keep, and the citizens' hope of cheap mutton and beef, the judges are wise in commending Mr. Rowley's very useful "duster," which opened up a career of success against this crawling and infinitesimal enemy, dating from Chester. We need not inform the farmer that it takes three rows at once, drawing up the fly by suction, and dusting the plant completely top and bottom with any preparation that may be thought proper. Some think that the failure of the turnip crop means "no turnips to mutton," but really it means mutton and beef 1s. per lb.

The application of gas, on a limited scale, to detached residences, is now made possible by T. B. Porter & Co., of Lincoln. It consists of three parts, that can be sheltered under any little "lean-to." These parts are the furnace or retort, the combined apparatus (forming in one vessel the hydraulic, main, condenser, and purifier), and the gas-holder. The machinery is at present made of six sizes, and exclusive of brick-work and fixing it may be obtained at the following cash prices:—For the supply of 15 lights, burning four hours, each light equal to ten sperm candles six to the pound, £47 10s.; for the supply of 120 lights, ditto, £150. It is calculated to afford a saving of 20 per cent. on the ordinary mode of making gas.

We spent an hour amongst Messrs. Gibbs and Lawson's collection: evidently, like many others, thinking them as interesting as any feature of the show. The taste displayed in arrangement surpasses our power to praise—they both excel each year; and endeavouring as they do to improve our varieties of plants, they deserve most thoroughly that support so cordially accorded them.

Those who feel how much straw is wasted in brick yards will value a sort of Manchester machine exhibited by Moody, for the weaving of straw fleeks, and also of thatch for stacks, &c. It is an ingenious contrivance.

We noticed several saw-benches, having band or circular saws. Those exhibited by Holmes and Son, by Barratt and Exall, Ransomes and Sims, Clayton and Co., &c., are worthy of attention; also a capital little saw-bench, by which a bit of wood may be cut into any shape in no time, invented by Duppa Duppa, Esq., of Wistanstow—quite a Robinson Crusoe sort of contrivance; and we quite expected to behold the broad slouched hat and bearded face bending over it; but we could find no one to discourse to us its entire wonders.

The principal reaping machines are those exhibited by Burgess and Key, Crosskill, Samuelson, Harwood, Cranston, Howe, and Cuthbert, the three last not being self-delivering.

It is our opinion, that with attention to details, changing the line of draught, removing the India-rubber webs, and substituting a straight hand-knife with sickle edge, or minute lancet points, Crosskill's Bell's machine would be the most serviceable machine for the farmer. Burgess and Key's does good work where the corn is standing, but it is a heavy cumbersome affair. Were it as good as the mower, it would deserve unqualified praise. Dray's machine still holds its way; and Cuthbert's improved Hussey has wonderfully good testimonials. Indeed we do not see why these little machines may not have a great run. They are not self-delivering, but four or five women following will put the sheaf raked off, into hand, and remove it from the way of the horses before they make their next journey.

There were 43 exhibitors of steam-engines. As being superior in workmanship, we desire to call attention to the engines of Messrs. Clayton and Shuttleworth, Tuxford, Hornsby, Ransomes and Sims, Barrett and Exall, Garrett and Sons, Smith and Ashby, and Ruston and Co. There is a marked and growing attention to the theory of combustion in these, and the sooner the farmers acquaint themselves with the laws of combustion, &c., the sooner will they be provided with engines which produce more with less fuel. We were delighted to witness the great and novel sight of 38 engines all at work at one time. Nothing was more calculated to impress upon the mind the vast idea of progress.

One very curious affair amused us. Everybody asked what it could be, as they saw it from without the walls, towering above everything, and some were not much the wiser when they approached it—we mean Mons. Pavy's Patent Granary. It consists of a small thrashing machine, and a winnowing, above which on a frame work are four cylindrical metal bins, their top 30 to 60 feet high, holding about 200 qrs. of grain. It is caught from the thrashing machine, passed to the winnower, and so to the sack if to be immediately stored. If to be preserved, it is whisked up into the bins above, by elevators, aired when necessary by coming down and going the round, and so on. It was to be sold on Friday; we don't happen to know who became the fortunate possessor; but we could not help thinking that the man to whom the hammer fell, would feel himself in a case with that perplexed individual who won an elephant at a lottery. Cost £300.

Amongst the dressing machines, we found Nalder's rotary screen (a very good thing indeed) and the American suction-blast drill (which for some purposes is better). As we described it at Christmas there is scarcely any necessity to do so now. We will simply say that it weighs in air every single grain separately, and does its chaffing work very effectively, at one operation being chaffer, riddle, and complete blower. The work done is not great, though perfect. The inventor and exhibiter are one A. B. Childs, of London. Boby's patent screen is still more improved, and is making rapid way, by virtue of its excellent properties.

Hayes' waggons (Stamford) deserve, for finish and excellence, great credit; also Milford's—always praised for cheapness and good workmanship.

We were struck with a capital mill exhibited by Childs, of 192, Tottenham Court Road, and Howard and Watts, of Norwich. No mill is like it for feeding purposes, grinding as it does four bushels in twelve minutes, no matter whether it be wheat, barley, oats, Indian corn, &c. The cylinder is conical, made of a peculiar metal, and revolves within a concave, which guides the flour round and round till it finds its way out.

The gates were numerous, both wooden and iron. There were two lords and one member of council exhibiters in this class; and the member of council won a commendation for a well-finished cheap article—we mean Mr. Torr. There were gates and posts at 24s. and upwards, and iron gates as low as £2. Great taste was displayed by Messrs. Greening, Hill and Smith, Mapplebeck and Co., in ornamental park and garden gates.

Joseph Gardner, of Banbury, exhibited a chaff-cutter that cuts the yelm at twice instead of once, each alternate knife being fixed in advance of the other towards the outer diameter of the wheel, and one-half of the mouthpiece being about two inches beyond the other. We don't see wherein a saving of labour is thus effected, unless the eating of a cherry is generally understood to be facilitated by making two bites at it.

Burgess and Key: A commendation was given to an implement invented by Augustus Munn, Esq. for brushing caterpillars and other insects off the turnip plants, for thinning the plants, and for hoeing the intervals. The brushes revolve on the same spindle with the thinning-knives, preceding them, and the hoes follow, to earth-up the worms brushed off the plants. The implement takes two rows at once.

Robert Hislop, of Haddingtonshire: A patent dressing machine with rotary screen. It is rather a large and expensive affair, but makes very good work. Elevators conduct the grain from the heap to the hopper, whence it falls into a revolving screen formed of wire cloth of different sized meshes, tightened over an Archimedian screw. The riddling surface thus obtained is very great, as the screw makes four turns in the length of a foot. The cylinder is 18 inches in diameter, so that a riddling surface of 19 feet is provided in each lineal foot. When the grain arrives at the termination of the cylinder, divested of dust, seeds, and small corns, it is delivered to a hopper, and from thence, while falling in a thin stream, upon a fixed riddle, is exposed to a strong blast, which tests the gravity of the grain.

Perreaux and Co., Mark-lane, showed a vulcanized India-rubber pump valve, which should come generally into use. It takes the form of a tube, flattened at the extremity, similar to the mouth-piece of a hautbois. It seems very simple, and not liable to get out of order. Price 4s.

Mr. Sawney, of Beverley, has introduced a new motion to his dressing-machine screen, by means of a "tappet" wheel, which we cordially recommend.

William Foster, of Lincoln—a cheap and effective rotary corn screen.

Burney and Bellamy, Mill Wall, London: The wrought-iron cattle trough, cisterns, and granaries manufactured by this firm attracted special attention. A cistern, holding 800 gallons, may be had for £9 10s.

Robert Maynard, of Whittlesford, Cambridge: We found at this stand a very interesting dibbling machine, which received a commendation. It is intended for one horse, and carries four rows. In front of the droppers are four discs, armed with dibbles. These revolve, and as each dibble leaves the soil a half-turn is given to it, and a clean hole is thus left. This machine is capable of dibbling with one man and one horse four acres per day.

S. and E. Ransome, Strand, London, exhibited Martin and Purdie's patent argand fire bars, to which we beg leave to call attention. By means of numerous perforations through the bars the supply of air is very much increased, and an intense heat is obtained at a saving of 25 per cent. in fuel. The bars remain *black* under a great fire, and offer peculiar facilities for the removal of clinkers. Price £12 to £16 per ton.—Commended.

"Delta's" and "Sigma's" implements, exhibited by Law, of Shetteston, and Powell, of Hurtsgreen, Sussex, attracted a good deal of attention. Frequent descriptions have been given of the hand-dibble, but "the *Multum in parvo*" has not been noticed. It is a one-horse implement, for cultivating, hoeing, drawing furrows, for manure or potatoes, earthing up, subsoiling, or broadsharing. The breasts are attached by hinges to the forepart of the body, and expanded simultaneously by a screw from behind. It is a very simple and effective article. A universal plough, of the same description, is shown by Law, but its uses are not so manifold as Powell's. We also found a self-relieving horse-rake. There is only one row of teeth, on which is placed a slide, which delivers the rakings and frees the teeth in case of meeting any obstruction. The rake and slide are free, until the resistance to the one brings the other into action: this is effected by means of ropes passing over pulleys. The horse, attached by traces to the loops of the pulley-blocks, draws the rake into the strewn crop: the pressure against the slide pushes it home to the head. To deliver the rakings, a pressure upon the handle, so as to increase the resistance of the rake-head, is necessary, when the slide runs forward and clears the teeth.

T. Perry and Son, Bilston, Staffordshire. A specimen of a good sheep-feeding, folding, and housing hurdle. It is 12 feet long by 3 ft. 6 in. high. It is constructed with strong angle-iron frame, sheet-iron panels to protect the sheep from cold wind, and is fitted with racks and troughs for hay, corn, and cake, with lids to them. Four wheels beneath allow it to be easily shifted. Price £3 10s.

Thomas Lyne, of Malmsbury.—The mechanical contrivance evinced by this stile is very good, but it does not at all accord with the present style of our ladies' dresses. No gentleman with any regard for his wife's feelings could countenance one of them upon his estate.

We could not but admire the large assortment of draining, grafting, and gardening tools, &c., &c., exhibited by Peyton and Clarke, of Birmingham. The workmanship was very superior, and the prices reasonable.

Richard Garrett and Sons.—We have here much pleasure in calling particular attention to a new patent combined thrashing and dressing machine. Great efforts have been made by this firm for many years to introduce to the public a really good and cheap combined machine. Improvement has followed upon improvement year after year. We have been compelled to admire the manner in which difficulties have been overcome. This year, however, we have to chronicle quite a marked and distinct advance, which, should it prove as true in practice, as one is led to suppose it will do, must secure to the inventors the decided support of farmers. To use the terms of the patentees, "the machine is *one-third* less in *bulk and weight* than machines on the ordinary construction, and performs the various operations of preparing the corn for market in a manner far nearer perfection than has hitherto been the case in any machinery employed for the same purpose, *with less than half the usual number of spindles, bearings, pulleys, and driving belts, and with one-third less power.*" Making due allowance for the partiality of implement makers for their pet offspring, and reducing the sum total of advantage by two, we have still a great gain. The drum, straw-shaker, screen, and elevators remain as they were; the improvement is to be looked for in the dressing and winnowing machinery. Instead of two or more blowers, one powerful blower is substituted, fixed on the drum-shaft. Two trunks proceed from this, and the air is forced downward in an oblique direction by one under the screen, where it is brought into contact with the chaff and corn, while the other trunk, nearly in a line with the fan, conducts two separate blasts to meet the corn on its journey through the oscillating and rotary riddles to the sacks below. The price of the 5-horse power machine, with a drum 54 inches long, is £85. We wait for the reports of those who will use this combined machine, thinking that it may turn out as well as it promises. Before closing our notice of this improvement, it will be well to add that these blasts are very easily controlled, and adapted to any grain that may be exposed to their influence.

W. Goulding, of Leicester, a patent oil-box wheel for ploughs, &c. The axle has a small bush secured upon it by a collar. Behind the bush is a flanged cap, extending to the centre, with leather washer. The front wheel having enclosed oil-box, is slided to the back, and a cap and three screw bolts secure the whole, and forbid the entrance of grit.

Messrs. Hill and Smith, of Dudley, introduce what they consider an improvement into the manufacture of harrows. The rivets which hold the frame together are hollow. The teeth are driven through these rivets, and fastened by a small peg. But we are not led to think very highly of this method.

Woods, of Stowmarket, showed the best and cheapest root pulper in the yard. All the complications of worm, cutter block, and oscillating motion are dispensed with. Price £4 15s. We found here also an ornamental compact mangle, occupying 3 feet by 2. The rollers are weighted by a box of stones beneath, instead of being kept to their work by springs. Price £6 10s.

Every farmer should have one of Eaton's (of Thrapston) lifting jacks, consisting of wrought-iron rack bar, wheel and pinions. One that will raise six tons is priced £4.

Mapplebeck and Lowe, of Birmingham, showed a very capital little implement for drilling mangold and turnip seed. It takes two rows. The cups are driven from a large wheel in front, which goes between the ridges. The rollers slide along the spindles so as to accommodate themselves to any inequality, and carry the coulters, and deposit always on the top of the ridge. A circular coulter in the middle of the front roller would be an improvement. The seed would be so surely and so lightly deposited by this little implement, that, so far as the sowing might be concerned, no anxiety need be felt about the plant.

Messrs. Ransome, Tuxford, Smith and Ashby, Turner, Haywood, Barrett and Exall, exhibited a number of most useful 1, 2, 3, and 4-horse portable steam engines. These miniature engines are getting very much into use for chaff-cutting, pulping, churning, pumping, &c., and are found to be extremely economical. The workmanship is quite equal to that of the larger engines. The Turners of Ipswich have been long and deservedly famous for their two and three-horse engines, which they were amongst the earliest to introduce, and that they still rank amongst the first with. They have also, perhaps, the most extensive business in the trade, both for crushing and grinding mills, and their standing was in this wise proportionately strong. Few houses have stood the test of hard work and long service with more success.

Nothing particularly new met our eye in horse-hoes. Garrett's and Priest and Woolnough's, and Garrett's Taylor's appear the best. They are all strong, well made, and completely under control.

Mr. Baker, of Woburn, having lost some beasts by fire, in consequence of not being able to get at their necks to set them at liberty, has invented a "cattle fastening," by which means a whole shed of animals may be released instanter. A lever outside the building commands all the fastenings simultaneously.

Henry Ellis, of Holbeach, exhibited a revolving cultivator, which acts well on light dry land. It consists of a frame on two large iron wheels, with gear wheels on the naves, driving two pinions, to which are attached two cylinders, having long circular teeth arranged so as to be adjusted to any depth. The cylinders revolve, and bring up the twitch, grass, &c., delivering them over the top.

By placing blades upon the teeth of his haymaker, Mr. Nicholson seeks to make a nettle and thistle extirpator, &c.

There was a large assortment of cheese-making apparatus, cheese presses, and churns, shown by Messrs. Waller, Mellard, Travis, Carson, Mapplebeck & Co., Burgess & Key, Tinkler, &c., all showing that great care was being taken to economise our dairy produce.

Messrs. Baylis & Co., Perry & Son, Hill & Smith, Greening, Mapplebeck & Co., Brown & Co., and Morton, have established themselves as first-class wire-fencing and iron-fencing manufacturers. We noticed nothing particularly new, except Morton's patent wire cable strand-fence, with winding straining pillars 200 yards apart. This is not nearly so portable as it might be, but, as the best perhaps in the yard, a commendation was given to it. The method adopted to tighten violin strings is employed to strain the wires.

Considering there were 4,000 implements, we might keep writing indefinitely; but having remarked on most of those implements which were marked specially by excellence or novelty, we think it best to draw this notice to a close.

A CATALOGUE OF THE IMPLEMENTS EXHIBITED AT THE WARWICK MEETING.

The following gives the Catalogue of the *largest* collection of Implements the Royal Agricultural Society has ever yet brought together. It will be the more appreciated when we say that Catalogues were difficult to procure at last, even in the Show-yard.

Benjamin Fowler, of Whitefriars Street, London.

Several specimens of a cast-iron bored pump, price £1 10s. to £5; (new implement) a small cast-iron bored pump, with brass valves, fixed on plank, price £1 10s.; several improved cast bored straight body pumps, price from £1 15s. to £5 5s., improved and manufactured by B. Fowler and Co.; a bundle of suction hose, price from 2s. 6d. per foot; a bundle of delivery hose, price from 8d. per foot; a parcel of branch pipes and jets; a bundle of pails, price 4s. each; a bundle of India-rubber tube, price 6d. per foot; a parcel of brass swivel unions, price 6s. 6d., all manufactured by B. Fowler and Co.; a cast-iron bored pump, with detached barrel, for wells over 30 feet deep, price £4, improved and manufactured by B. Fowler and Co.; several wrought-iron portable pumps, price £2 10s. to £3 5s., manufactured by B. Fowler and Co.; a copper portable pump, on folding legs, price £7 10s.; a wrought-iron pump for fixing to back of carts, price £2 5s.; a copper pump for back of carts, price £3 15s., improved and manufactured by B. Fowler and Co.; a garden watering engine, price £3 10s., manufactured by B. Fowler and Co.; a portable garden force pump, price £7 7s., improved and manufactured by B. Fowler and Co ; several specimens of Holman's patent double-barrel force and irrigating pump, price £15 to £33 10s., invented by Stephen Holman, of Deptford, improved and manufactured by B. Fowler and Co.; a brass force pump, on brass foot, price £5 15s.; another size, price £7 10s., improved and manufactured by B. Fowler and Co.; a lift pump, on plank, price £4 16s. 6d.; another size, price £6; and a water tank, on wheels, galvanized, price £2 10s., manufactured by B. Fowler and Co.; four sizes of Holman's patent double-action pump, for steam power, price £8 10s. to £23, invented by Stephen Holman, of Deptford, improved and manufactured by B. Fowler and Co.; a Holman's patent double-barrel force pump, in frame, price £22 10s.; an improved hydraulic ram, price £15, improved by Freeman Roe, of Wandsworth, manufactured by B. Fowler and Co.; a model hydraulic ram, with tanks for showing the action of the hydraulic ram, price £5 5s.; Holman's patent double-action pump and steam gear, price £32 10s., invented by S. Holman, of Deptford, improved and manufactured by B. Fowler and Co.; an improved sluice valve, for shutting off the supply through liquid manure or water mains, price £3 3s.

Thomas Bigg, of Leicester House, Great Dover-street, Southwark, Surrey.

A sheep dipping apparatus on wheels, complete with crane and cradles, price £14; a sheep dipping apparatus, with iron bar drainer, price £5; a sheep dipping apparatus, price £4; a sheep dipping apparatus, with wooden drainer, price £3, invented, improved, and manufactured by the exhibiter.

Joseph Gardner, of Banbury, Oxfordshire.

Several specimens of (new implement) a patent chaff machine, price £7 10s. and £10 10s., invented and manufactured by the exhibiter; a patent Gardner's turnip cutter for sheep, price £4 10s., invented by the late James Gardner, of Banbury, and manufactured by B. Samuelson, of Banbury; a bean mill on wood stand, price £2 6s.; a horse hoe, price £3 3s.; an iron tooth drag rake, price 11s., improved and manufactured by the exhibiter.

Nathaniel Smith (late W. L. Fisher), of Thrapston, Northamptonshire.

Two specimens of a patent field roller, price £8 and £10; a patent clod crushing roller, price £15; a patent horse rake, price £7 10s. (received a prize at the Manchester and Liverpool Agricultural Society's Show at Wigan, 1857; also a prize at the Royal Show, Salisbury, 1858); three specimens of an improved chaff machine, price from £3 15s. to £10 (took the first prize at the Preston Show, 1856; also a special prize at Wigan, 1856); an improved five-rowed steerage corn drill, price £10 10s., to drill turnips £1 10s. extra (received the first prize of £5 at the Royal Show at Waterford 1857, the first prize of £5 at the Royal Show at Londonderry 1858, first prize at Ulverstone, and first prize at Manchester 1858); an improved two-row turnip and mangold drill, price £12; an improved turnip mangold, and manure drill, price £6 10s.; an improved cake mill, price £3 5s.; an improved double cake mill, price £4 10s. (received the prize at Manchester, August, 1858); an improved bean and cake mill, price £5; an improved bean mill, price £2 10s.; an improved one-horse power, price £12; an improved steerage horse hoe, price 6*l*. 10s.; and an improved seven-tined cultivator, price 5*l*., all invented improved, and manufactured by the exhibiter.

Burgess and Key, of 95, Newgate-street, London.

A reaping machine, price 42*l*. 10s., invented by C. H. M'Cormick, of Chicago, U.S., improved and manufactured by the exhibiters (the Royal Agricultural Society's first prize was awarded to this machine in 1855, and their prize of 15*l*. in 1856; it also received their prize at Salisbury in 1857); a grass mowing machine, price with two knives 30*l*., invented by J. Allen, of New York, improved and manufactured by the exhibiters; (new implement) a revolving horse hoe, price 8*l*., invented by Wm. Augustus Munn, Esq., of Throwley House, near Feversham, Kent, and manufactured by the exhibiters; a package of adjustable scythes, price 4*l*. 10s., invented by Robert Otway, of Lambeth, and manufactured by the exhibiters; three sizes of a force and lift pump, or farm fire engine, price on stand 13*l*. 1s. to 26*l*. 10s., invented by Kase, of America, improved and manufactured by the exhibiters; a patent American churn, price to make 3lbs. of butter 1*l*. 10s., and various other sizes and prices up to one to make 12lbs. of butter 2*l*. 12s. 6d., invented by C. J. Anthony, of America, improved and manufactured by the exhibiters (has received prizes at all the meetings of the Royal Agricultural Society since its introduction, including the one at Chester, also the Great Exhibition in 1851); and a packet of Boîtes à Houppe, price 2s. 6d. each, invented by Messrs. Ouin and Franc, of Paris, and manufactured by the exhibiters.

Robert Hislop, Jun., of Preston Pans, Haddingtonshire.

(New implement) a patent dressing apparatus for grain, price 26*l*., invented by the exhibiter, and manufactured by Messrs. Dickson and Munro, of Dunbar, N.B.; and (new implement) a patent dressing apparatus, capable of dressing all kinds of grain and seeds, price 28*l*., invented by the exhibiter, and manufactured by Samuel Rogerson, of Preston Pans, N.B.

Samuel Henton, of 7, Bridge-street, Surrey side of Westminster Bridge, London.

Six patent elastic saddles and two ladies' side saddles, price for gentleman's saddle 5*l*. 10s., lady's 8*l*. 8s. and 9*l*. 9s., invented and manufactured by the exhibiter; six Melton stands for drying saddles, price 10s. 6d., manufactured by exhibiter.

Robert Swaine, of Kenilworth, Warwickshire.

A field gate, price 1*l*. 4s., improved and manufactured by the exhibiter.

Thomas Kennan and Son, of 18 and 19, Fishamble-street, Dublin.

A Kennan's wire strainer, price 1*l*. 5s.; and a set of Kennan's tools for knotting fence wires, price 7s. 6d., invented and manufactured by the exhibiters; a wire straightening machine, price 15s., improved and manufactured by the exhibiters; a Kennan's collar vice, price 3s. 6d.; and a set of tools for erecting wire fences, price 3*l*. 5s., invented and manufactured by the exhibiters (these tools were "specially commended" by the judges at the Chester Show of the Royal Agricultural Society of England, 1858); Kennan's apparatus for blasting roots and stumps of trees, price 1*l*. 10s. to 2*l*. 10s., improved and manufactured by the exhibiters ("specially commended" by the judges at the Chester Show of the Royal Agricultural Society of England, 1858); a Kennan's double-action log-sawing machine, price 2*l*. 15s.; and a Kennan's house and garden ladder, price 1*l*. 15s., invented and manufactured by the exhibiters; chisel-tooth cross-cut saws, price 12s. 6d., 14s. 6d., and 16s. 6d.; Kennan's felling saws, price 1*l*. 4s., 1*l*. 6s., and 1*l*. 8s., improved and manufactured by the exhibiters; a Kennan's double-action log-sawing machine, price 2*l*. 15s., invented and manufactured by the exhibiters.

Griffiths and Browett, of 68, Bradford-street, Birmingham, Warwickshire.

A cheese-making apparatus, for cutting, filtering, and pressing curd, made of tinned sheet-iron, price 25*l*., invented by Mr. Richard Keevil, Laycock, near Chippenham, and manufactured by the exhibiters (seven prizes have been awarded to it, and a silver medal at the Royal Agricultural Society's meeting at Chelmsford, July 16th, 1856); a tinned-iron milk bucket, price 9s.; a tinned-iron milking pail, price 4s.; a tin milk sieve, price 7s. 6d.; and a tin whey funnel, price 4s.; all manufactured by the exhibiters; an apparatus for cutting, filtering, and pressing curd in the manufacture of cheese, made in brass, price 32*l*., invented by Mr. Richard Keevil, Laycock, near Chippenham, and manufactured by the exhibiters; a brass milk sieve and whey funnel, price, milk sieve 16s. 6d., whey funnel 8s. each, manufactured by the exhibiters.

Perreaux and Co., of 39, Mark-lane, London.

Twenty specimens of a patent India-rubber pump valve, price 4s. and upwards, invented by L. G. Perreaux, of Paris, and manufactured by the exhibiters (obtained the second prize at the Exposition Universelle, at Paris, 1856; silver medal at the Concours Régional Evreux, 1857; silver medal at the Exposition de Vienne, 1857; grand gold medal from the Société d'Encouragement, 1857; silver medal at the Royal Agricultural Society, 1857); several sizes of a patent India-rubber pump bucket valve, price 10s. to 3*l*. 5s., invented by L. G. Perreaux, of Paris, and manufactured by the exhibiters; several sizes of an India-rubber pump bucket cup, price 5s. to 10s.; a 3-inch brass and glass model pump fitted with patent valves, price 8*l*.; a 3½-inch brass and glass ditto, price 9*l*.; a 4-inch copper liquid manure pump fitted with patent valves, price 7*l*. 11s.; a 4-inch patent copper liquid manure fire [illegible] and garden pump, price 10*l*.; India-rubber and canvas [illegible], price 1s. 6d. and 1s. 10d. per foot; India-[illegible] band, price 8¼d. to 2s. 7d. [illegible] rubber over-coat, [illegible] price [illegible]

Richard Read, of 35, Regent Circus, Piccadilly, London.

A patent double-lever agricultural fire engine, complete (a silver medal was awarded for this engine at the Exeter meeting), price £24; and three sizes of a patent watering engine, invented, improved, and manufactured by the exhibiter, price £5 5s. to £7 10s.; patent injecting instrument for horses, cattle, &c., invented by the late John Read, improved and manufactured by the exhibiter, (has been highly commended at several of the Royal Agricultural Society's meetings), price £2 10s.; a hollow probang, for relieving hoven or choked calves, sheep, &c., price 10s. to £1 10s.; a patent hand watering machine, invented, improved, and manufactured by the exhibiter, (highly commended by the judges at several of the Society's meeting), price £2 12s. 6d.; a patent greenhouse pump, complete, price £2 10s.; and a patent greenhouse syringe, price £1 10s.; all invented, improved, and manufactured by the exhibiter.

William Sawney, of Beverley, Yorkshire.

A patent corn dressing machine, invented and manufactured by the exhibiter, price £10 10s.; corn dressing machines, improved and manufactured by the exhibiter, price £8 and £9; a corn dressing and cliver machine combined, price £12, and a corn dressing (export) machine, invented and manufactured by the exhibiter, price £6 10s.; a farmer's weighing machine, improved and manufactured by the exhibiter, price £2 15s., and a blowing machine, invented and manufactured by the exhibiter, price £4 12s.

William Foster, of Lincoln.

An eight horse power portable steam engine, price £230, and a combined portable thrashing machine for finishing the grain for market, price £110, both invented, improved, and manufactured by the exhibiter, and a rotary corn screen and riddle, price £10 10s., invented, improved, and manufactured by Mitton and Co., of Lincoln.

Burney and Bellamy, of Mill Wall, London (E.).

(New implement) a model of wrought iron cilo or granary for corn, price 8s. per quarter for 40 quarters and upwards; and a wrought iron cistern for farm and house purposes, contents 400 gallons, price £5, manufactured by the exhibiters; a wrought iron cattle trough, contents 115 gallons, invented and manufactured by the exhibiters, price £2 15s.; a wrought iron cattle trough, contents 75 gallons, commended at Salisbury show, price £2, smaller sizes cheaper; a galvanized iron pump trough, price 16s.; and a wrought iron pig trough, manufactured by the exhibiters, price 14s. or 3s. 6d. per foot for 4 feet and over.

F. M'Neill and Co., of the Asphalted Roofing Felt Works, Bunhill Row, London.

Patent asphalted roofing felt, manufactured by the exhibiters, price 1d. per foot; several models and specimen framings of roofs illustrating the cheap construction of roofs for the application of F. M'Neill's asphalte roofing and other purposes, showing the plan of its application to the roofs of the huts of the very extensive Government camps at Aldershot, Shorncliff, Colchester, and the Curragh of Kildare—accommodation for 40,000 soldiers, and consuming between 3,000,000 and 4,000,000 feet of felt.

R. Robey & Co, of Lincoln.

A steam cultivator, invented by Chandler and Oliver, and manufactured by the exhibiters, price £410; a three-furrow plough, to be worked by steam power, invented by Chandler & Oliver, and manufactured by J. and F. Howard, of Bedford, price £50: an eight horse power patent portable steam engine, price £230; a ten horse power patent portable double cylinder engine, with reversing gear, price £290; a portable combined thrashing, shaking, and dressing machine, for finishing the corn for market in one operation, price £115, all invented, improved and manufactured by the exhibiters; all the above prices are subjected to 2½ per cent. discount for cash.

B[illegible] Maynard, of Whittlesford, Cambridge.

[illegible] invented and manufactured by the exhibiter, [illegible] patent dibbling machine, [illegible] and Robert May-[illegible] exhibiter, [illegible] sifting chaff engine, for accompanying a portable steam thrashing machine, price £34; and a granary crane, price £9 10s., invented and manufactured by the exhibiter.

W. & M. **Baylis** & Co., of Monmore Green, Wolverhampton, Staffordshire.

(New implement) several specimens of a patent wrought iron hurdle for sheep and cattle, invented by Mr. William Bayliss, of Wolverhampton, and manufactured by the exhibiters, prices various, from 3s. 7d. upwards; (new implement) a wrought iron hand gate, price, 3 feet wide with six bars, 12s.; and (new implement) a length of patent continuous flat-barred fence, invented by Mr. William Bayliss, of Wolverhampton, and manufactured by the exhibiters, price 3s. 1d. per yard; a strong wrought iron vertical bar hurdle, price 5s. 6d. per yard; a specimen of continuous deer fence, price 3s. 6d. per yard; a set of wrought iron garden stakes, price, 2 ft. 3s. 6d., 3 ft. 6s., 4 ft. 9s., 5 ft. 13s. 6d., and 6 ft. high 24s. per dozen; and a specimen length of continuous ox fence, manufactured by the exhibiters, price 2s. 8d. per yard; improved footpath gate, invented and manufactured by the exhibiters, price £1 3s.; two galvanized iron buckets, price 2s. and 2s. 6d.; a galvanized house pail, price 2s. 4d.; a galvazized St. Alban pail with lid, price 3s. 3d.; a galvanized iron chamber pail, price 3s. 9d.: a Waterloo beer can, price 4s.; a strong water can, price 3s. 4d.; a galvanized Waterloo coal scoop, price 2s. 9d.; a galvanized coal scoop, price 2s. 10d.; a wood handle bowl, price 1s. 6d.; a strong socket bowl, price 3s. 6d.; a galvanized wash-hand basin, price 1s. 4d.; a galvanized turnip basket, price 7s. 6d; a galvanized seed hopper, price 7s. 6d; a galvanized wateringcan, price 2s. 9d.; and a galvanized toilet can price 4s. 3d.; all manufactured by E. Davis, of Wolverhampton; two wrought iron corner hay racks, price, black 8s., galvanized 11s.; a wrought iron sack barrow or truck, manufactured by the exhibiters, price 12s.; a stump bedstead of solid iron, painted green, price £1; a wrought iron wheeelbarrow, for stable purposes, price £1 10s.; a self-relieving chain harrow, price £3; a light wheelbarrow, price £1 5s; a sample of black and galvanized cart and plough traces, price galvanized 5½d., black 4d. per lb.; and a machine for tightening or straining wire fencing, price £1 5s., all manufactured by the exhibiters; a 4-inch gutter, galvanized, price 6d. per foot; a fountain head, galvanized, price 3s. 6d.; a 2-inch pipe, galvanized, price 7½d. per foot; and a registered pump, price £1 15s.; all invented and manufactured by E. Davis, of Wolverhampton; a straining standard, with double stay, price 18s.; and a set of wrought iron garden stakes, manufactured by the exhibiters, price, 2 ft. 5s., 3 feet 9s., 4 ft. 12s., 5 ft. 18s., and 6 feet high 28s. per dozen; a wrought iron ornamental tube gate, with handsome cast iron pillars, invented and manufactured by the exhibiters, price £4; a length of light fencing, price 3s. per yard; a pair of strong wrought iron entrance gates, with cast iron pillars, price £7; a length of light fencing, price 3s. per yard; a wrought iron garden gate, and wrought iron pillars, invented and manufactured by the exhibiters, price £1 15s.; a wrought iron garden gate, with light fluted cast iron pillars, manufactured by the exhibiters, price £1 17s. 6d.; a pair of wrought iron entrance gates, with fluted cast tron pillars, invented and manufactured by the exhibiters, price 5*l.*; a pair of ornamental wrought iron entrance gates, with handsome octagon cast iron pillars, price £5; a strong wrought iron vertical-barred field gate, price £2 5s.; a wrought iron field gate, price £1 9s.; and a wrought iron field gate, hung to fluted cast iron pillars, manufactured by the exhibiters, price, gate and pillars complete, £2 5s., gate only £1 5s.; (new implement) a wrought iron flat-barred field gate, with wrought iron pillars, price, gate and pillars, £2 7s., gate only £1 5s.; and a strong wrought iron tube gate, invented and manufactured by the exhibiters, price 34s.; a wrought iron footpath gate, with vertical bars, to fix in hedgerows, &c., manufactured by the exhibiters, price 55s.; a coil of best prepared fencing wire, price 12s. 6d. per cwt.; and intermediate upright for strained wire fencing, price 11d.; a plain wrought iron tree guard, manufactured by the exhibiters, price 12s.; a specimen of galvanized game-proof wire netting, price, 2 feet wide, wire 19 gauge, 9d. per lineal yard; 2 ft. 6 in. wide, wire 18 gauge, 1s.; 3 feet wide, wire 17 gauge, 1s. 1d.

Robert Boby, of Bury St. Edmund's Suffolk.

A wrought iron light-land or barley roll, invented and manufactured by the exhibiter, price £11; a patent corn dressing machine, patronized by the judges at the Royal Agricultural Society at Chester, price £14; large patent corn screens, with new improved extra separator, price £10 10s. to £15 15s.; and small patent corn screens, price £7 to £8 10s., invented by T. C. Bridgman, of Bury St. Edmund's, improved and manufactured by the exhibiter.

James Coultas, jun., of Spitalgate, near Grantham, Lincolnshire.

A general purpose drill (obtained first-class prizes, viz, £4 t Market Rasen, July, 1856; £5 at Rotherham, August,e a856; £5 at Louth, July, 1857; £5 at York, August, 1857(; 1and £5 at Grantham, July, 1858), price £49, if with for carriage and steerage, as exhibited, £4 10s. extra; a twelve-row corn and seed drill, invented, improved, and manufactured by the exhibiter, price, with swing steerage, £31 10s., if with extra seed cylinder 30s. extra.; an eight-row corn and seed drill, price £23, if with extra seed cylinder, 30s. extra; a twenty-four-row small seed and rye grass drill, price £26; a combined dressing machine and blower, invented, improved, and manufactured by the exhibiter, price £11 11s.; a corn blower or dressing machine (commended by the Royal Agricultural Society at Chester, 1858), price £7; and a blower, price 5*l.*; all invented, improved, and manufactured by the exhibiter.

J. L. and F. L. **Hancock**, of Pentonville, London.

(New implement) a pulverizer plough, price 6*l.* 10s.; (new implement) a pulverizer, price 6*l.* 6s.; (new implement) a double pulverizer plough, price 12*l.* 12s.; (new implement) an improved seed drill, price 20*l.*; two perfect washing machines, price 7*l.* 10s and 5*l.* 5s.; and a power washing machine, price 50*l.*, all invented and manufactured by the exhibiters.

Charles Clay, of Walton, near Wakefield, Yorkshire.

(New implement) several specimens of a patent prize cultivator and twitchgrass eradicator (obtained a Yorkshire Society's prize of 5*l.* at Northallerton, 1858), price 6*l.* 14s. to 11*l.* 7s., levers for regulating the depth of work 21s. extra; (new implement) three sizes of a patent cultivator and eradicator, price 9*l.* 7s. to 13*l.* 7s.; (new implement) a patent turnip scarifier, price 42s.; (new implement) a patent grubber and drag harrow, price 5*l.* 10s.; all invented and manufactured by the exhibiter.

A. and E. **Crosskill**, of Beverley, Yorkshire.

(New implement) a Crosskill's improved clod crusher, this implement is an improvement upon the well-known roller to which the gold medal of the Society was awarded in 1846, and which received the first prize at the last competitive trial of clod-crushers in 1856), price, complete, 21*l.*; a Crosskill's improved clod crusher, price, without travelling wheels, 17*l.* 10s., complete 19*l.* 10s.; and a Crosskill's improved one-horse cart (No. 1), invented hy William Crosskill, of Beverley, improved and manufactured by the exhibiters, price 13*l.*, with shelvings 30s. extra; Crosskill's improved one-horse carts, improved and manufactured by the exhibiters, price 10*l.* 10s. to 12*l.* 10*l.*; a Crosskill's improved pair-horse waggon, price 29*l.* 10s.; and four pair of Crosskill's improved cart wheels and axles, invented by William Crosskill, of Beverley, improved and manufactured by the exhibiters, price 8*l.* 5s.; 7*l.* 10s., 7*l.* 5s., and 6*l.* 10s.; a Crosskill's improved iron cart, for liquid manure or water, price 17*l.*, with pump and hose pipe 5*l.* 15s. extra; and a Crosskill's improved iron street watering cart, price 23*l.*, invented by William Crosskill, of Beverley, improved and manufactured by the exhibiters; a Crosskill's Archimedan root washer, improved and manufactured by the exhibiters, price 5*l.* 10s.; specimens of Crosskill's improved portable farm railway, price 4s. per running yard; and an improved truck for portable railway, invented by William Crosskill of Beverley, improved and manufactured by the exhibiters, price 5*l.* 10s.; a Crosskill's improved bone mill, price 85*l.*; and a Crosskill's improved reaping machine, improved and manufactured by the exhibiters, price 42*l.*

Albert Hudson Royds, of Falinge, near Rochdale, Lancashire.

An outside cylinder portable steam-engine and boiler of ten horse power, ten inch cylinder, price £250; an improved windlass, price £110; (new implement) self-acting crabs, price £20 each; and (new implement) a steam plough for subsoiling and ploughing, price £20, invented by the exhibiter, and manufactured by Barnish and Ratcliffe, of Rochdale. Lancashire.

Hare and Co., of 31, Essex-street, Strand, London.

A sample of Mabson's anti-smut powder, invented and manufactured by W. Mabson, price 10s. per dozen packets.

S. and E. Ransome and Co., of 31, Essex-street, Strand, London.

Long's specific, reduced to 4s. 6d. per gallon; Long's preservative, or lamb dressing, price 2s. 8d. per gallon; and Long's foot rot lotion, price £1 10s. per dozen pints, invented by Joseph Long, of London, and manufactured by Barry Brothers, of Merriton's Wharf, London; an improved wrought iron sheep dressing fork, invented and manufactured by Henry Inskip, price 15s.; several specimens of sheepskin with fleece improved by the application of Long's non-poisonous "preservative;" Schaeffer's patent steam gauges, of 60lbs. and 200lbs. pressure, in brass case, price £4 and £3; and a Schaeffer's improved counting machine, invented and manufactured by Schaeffer and Co., of Magedeberg, price with four dials or figures to count up to ten, £2 13s. 6d.; a patent sluice valve for gas water, or other fluids, invented by Brown and May, of Devizes, price, 3 inches diameter and upwards, 10s. per inch; a model of self acting alarm whistle, for steam boilers, invented by Mr. Johnson, manufactured by H. Watson, price £3 10s.; a sample of patent boiler composition for destroying and preventing incrustation in steam boilers, invented and manufactured by Mr. Buckingham, price £2 5s. per cwt.; a sample of Newcastle vulcan cement for all kinds of steam joints and pipes, price £1 11s. per cwt.; (new implement) a patent Argand fire bar, invented and manufactured by Martin and Co., of London, price according to quantity, £12 to £16 per ton; a patent English knuckle washing machine, invented by Grey and Co., and manufactured by the exhibiters, price £3 5s.; a patent spherical bearing and Plummer block, invented and manufactured by Wallis and Haslam, of Basingstoke, price, brasses 2½ inches, £1 12s. 6d.; a lifting jack, with brass bush, manufactured by the exhibiters, for agricultural and other purposes, price to lift 2 tons, £1 16s., to lift 4 tons £2; an improved hand drilling apparatus, price with 6 drills (up to ¾in.), £2 5s.; and (new implement) an improved post auger, manufactured by the exhibiters, price 12s. 6d.; (new implement) a patent root extirpator, invented by Mr. Alison, of London, and manufactured by the exhibiters, price 3s.; a farm or laundry boiler, to hold 30 gallons, price with black pan, £4 5s.; an improved cheese room stove, with portable self feeder, invented and manufactured by Mr. Bamford, price No. 2, £2; (new implement) an improved roller washing machine, invented and manufactured by the exhibiters, price No. 1, £2 2s. to £3 3s.; a wringing and mangling machine, price £3 10s.; a wringing machine, price £2 5s.; a nest of four corn bins, price £4 15s.; a nest of five patent iron traveling and office trunks, invented by Wilson and Co., and manufactured by the exhibiters, price japanned, £4 7s. 6d.; wrought iron fire proof book safes, manufactured by the exhibiters, price £6 10s. and £11 10s.; a patent filter or purifier, with brass tap and wicker covering over earthen case, price £1; and a pocket or sportsman's filter, price 3s. 6d.; Nye's patent mincing and sausage making machines, invented and manufactured by S. Nye, price £1 10s. to £3 3s.; (new implement) several sizes of Loysel's patent hydrostatic percolator, or urn, in planished tin, invented and manufactured by E. Loysel, of Paris, price one pint 7s. 6d., two pints 12s. to £2 5s.

Hart, Gibbons, and Gibbons, of Wantage, Berkshire.

A six horse power portable steam engine, invented and manufactured by William Butlin, of Northampton, price £200; a portable combined thrashing machine for preparing the grain for market, invented by Charles Hart, of Wantage, improved and manufactured by the exhibiters, price £110; portable combined thrashing machines, invented and manufactured by the exhibiters, price £65 and £78.

John Martin, of Barmer, near Fakenham, Norfolk.

A Martin's patent root cutter, price £5 10s.; and a Martin's patent root pulper, price £6 10s., both invented by the exhibiter, and manufactured by Creake and Cobby, of Burnham Market, Norfolk.

Bernhard Samuelson, of Britannia Works, Banbury, Oxon, and 76, Cannon-street West, London, E.C.

(New implement) a patent Britannia self raking reaping machine, invented by Seymour and Morgan, of the United States, improved and manufactured by the exhibiter, price at Banbury 32*l*., in London 34*l*.; (new implement) a Samuelson's pair horse mowing machine, invented and manufactured by the exhibiter, price 20*l*.; an improved horse rake, manufactured by the exhibiter, price with iron teeth 7*l*. 10s., steel teeth 8*l*.; a Samuelson's improved double action haymaking machine, improved and manufactured by the exhibiter, price 13*l*. 13s.; an improved one horse power, improved and manufactured by the exhibiter, price with leading bar and road cover complete, 13*l*.; several sizes of Samuelson's patent Gardner's double action turnip cutter, invented by the late James Gardner, of Banbury, and improved and manufactured by the exhibiter, obtained the first prize at the competitions of the Society's annual meetings in 1849, 1850 (at the Great Exhibition in 1851), 1852, 1853, 1854, 1855, and at the great triennial competition at Chester 1858, price 5*l*. 13s. 6d. and upwards, if without lamb plates 5*l*. 10s.; several sizes of Samuelson's patent Gardner's (all iron) turnip cutter for sheep and lambs, improved and manufactured by the exhibiter, price 5*l*. 7s. 6d.; a patent Gardner's turnip cutter for cattle, invented by the late James Gardner, of Banbury, improved by Alexander and Bernhard Samuelson, and manufactured by the exhibiter, price 4*l*. 10s.; a patent Gardner's turnip slicer, invented by the late James Gardner, of Banbury, improved and manufactured by the exhibiter, price 4*l*. 3s.; a lever turnip slicer, invented and manufactured by the exhibiter, price 1*l*. 15s.; a Samuelson's improved root pulper (No. 2), improved and manufactured by the exhibiter, highly commended at Chester in 1858, price 5*l*. 10s., if with pulley extra; patent root graters, invented by Bushe and Barter, of Lismore, Ireland, and improved and manufactured by the exhibiter, price 3*l*. 10s. and 4*l*. 5s.; a turnip grater (No. 1), invented by Edmund Moody, late of Maiden Bradley, and improved and manufactured by the exhibiter, price 4*l*. 10s.; a patent cart turnip cutter, invented by Caldow and McKinnell, of Dumfries, and manufactured by the exhibiter, price 14*l*. 14s.; patent combined root graters and chaff cutters, invented and manufactured by the exhibiter, 6*l*. 10s. and 9*l*.; a Samuelson's Banbury chaff cutter, invented, improved, and manufactured by the exhibiter, awarded the 3*l*. prize at the triennial trials at Chester in 1858, price 13*l*., if with pulleys extra; several specimens of Corne's chaff cutter, invented by John Cornes, sen., of Barbridge, and improved and manufactured by the exhibiter, price 4*l*. 15s. to 12*l*.; a rising mouth chaff cutting machine, improved and manufactured by the exhibiter, price 3*l*. 15s.; an economical chaff cutting machine, price 2*l*. 15s.; and a small chaff cutter, for exportation, invented and manufactured by the exhibiter, price 3*l*. 5s.; several sizes of Samuelson's improved roller mill, for crushing malt, linseed, &c., improved and manufactured by the exhibiter, price 5*l*. to 8*l*. 15s.; a Samuelson's improved malt crushing mill, invented, improved, and manufactured by the exhibiter, price 6*l*. 15s.; a universal corn crushing, or bruising mill, invented by the late Mr. Stratton, of Bristol, improved and manufactured by the exhibiter, price 5*l*. 10s.; bean splitting mills, manufactured by the exhibiter, price 2*l*. 2s. 6d. to 3*l*. 15s.; Samuelson's linseed cake breakers, invented, improved, and manufactured by the exhibiter, price 2*l*. 16s. 6d. to 10*l*. 10s.; a general purpose iron wheel plough, price 4*l*., if with steel breast 4*l*. 8s.; a Samuelson's strong wrought iron five tine horse hoe, price 3*l*. 10s, and a strong wrought iron three tine ditto, price 2*l*. 16s, manufactured by the exhibiter; a patent turnip thinner, invented by Thomas Huckvale, of Choice Hill, improved and manufactured by the exhibiter, received the Royal Agricultural Society's money prizes, three Bath and West of England Society's prizes, and many local ones, price 7*l*., with hoes to hoe the whole surface, 8*l*.; a chain harrow, 5ft. by 7ft. 6in., improved and manufactured by the exhibiter, price 3*l*. 3s.; a chain harrow, 7ft. 9in. by 7ft. 6in., manufactured by the exhibiter, price 4*l*.; three sizes of Cartwright's patent chain harrow, invented by J. Cartwright, of Shrewsbury, improved and manufactured by the exhibiter, price 3*l*. 7s. to 5*l*. 15s.; a set of three four-beam diagonal harrows, manufactured by the exhibiter, price 3*l*. 3s. and 4*l*. 4s.; a Crosskill's patent clod crusher, 6ft. by 2ft. 6in., invented by William Crosskill, of Beverley, and manufactured by the exhibiter, has received many Royal Agricultural Society's and other prizes, price 19l. 10s., without travelling wheels 17l. 10s.; smaller size, price 15l. 10s., if with travelling wheels 17l. 10s.; a Patterson's patent clod crusher, invented by John Patterson, of Beverley, Yorkshire, and manufactured by the exhibiter, price 6ft. long by 2ft. diameter 17l. 10s., if without travelling wheels 30s. less; a Cambridge's press roller, or clod crusher, invented by William Cambridge, of Bristol, and manufactured by the exhibiter, price 7ft. by 2ft. 2in. diameter, 18l.; a Robinson's patent press roller and clod crusher, invented by G. W. Robinson, of Barton-on-Humber, and manufactured by the exhibiter, price 6ft. 9in. long, rings 2ft. 2in. and 2ft. 4½in. diameter 17l.; an improved iron frame field roller, 6ft. long by 20in. diam., invented, improved, and manufactured by the exhibiter, price 10l.; a Samuelson's digging machine, invented by B. Samuelson, of Banbury, improved and manufactured by the exhibiter, price 30l.; an Anthony's patent American churn (10 quarts), invented by Charles Anthony, of Pitsburg, U.S., improved by Burgess and Key, of London, and manufactured by the exhibiter, took the Royal Agricultural Society's silver medal at Exeter, a prize medal at the Great Exhibition 1851, the prize at Gloucester 1853, at Carlisle 1855, and at Chester 1858, price 2l. 13s., without stand 2l. 5s.; Samuelson's registered atmospheric churns, invented by B. Samuelson, of Banbury, improved and manufactured by the exhibiter, price 4 quarts 1l. 6s., 8 quarts 1l. 11s. 6d., if on stand 1l. 19s. 6d., 12 quarts 1l. 15s., and 20 quarts 2l. 2s. 6d.; Boyd's patent lawn mowing machines (30in., for pony power), improved and manufactured by the exhibiter, price with packing case complete 13l. 13s., down to (12in.) 4l. 17s. 6d.; several sizes of garden roller, price 3l. 18s. down to 2l; rustic garden seats, 6 feet long, price 1l. 10s. 6d, 4 feet long, 1l. 6s. 6d.; and wrought iron hand sack barrow, price 13s. 6d.; a 4½ inch galvanized iron pump for liquid manure, improved and manufactured by the exhibiter, price 2l. 5s.; a length of gutta percha suction pipe (10 feet), price 1l. 5s; a 4½ inch galvanized iron pump, for liquid manure, price 2l; a length of 10 feet of gutta percha suction pipe, price 1l. 5s.; a winnowing and blowing machine, price 10l. 10s.; a barley hummeller, price 4l. 10s.; a Samuelson's portable mangle, price 4l. 12s. 6d.; and an improved table mangle, price 4l. 10s., all invented, improved, and manufactured by the exhibiter; a Gauntlett's patent chronometrical thermometer, invented, improved, and manufactured by W. H. Gauntlett, of Eaton, Middlesbro'-on-Tees, price 7l. 10s.; an Archimedian root washer, price 5l.; and a hand drag rake, price 12s, manufactured by the exhibiter; several specimens of solid cast steel hay forks, price 1s. 10d. to 3s. 4d.; a bright pitch fork, price 5s. 4d.; a potato fork, improved pattern, crutch trees, price 3s.; a solid cast steel potato fork, crutch trees, price 4s. 9d.; a three-prong solid cast steel American pattern digging fork, price 3s. 9d.; and a three prong solid cast steel American pattern manure fork, price 3s. 9d., invented and manufactured by W. A. Lyndon, of Birmingham; a galvanized turnip skip, 19 inches, price 4s. 3d.; 21 inches, price 4s. 6d.

Thomas Read & Co., of 4, Agar-street, Strand, London.

A specimen of sign painting used in exhibition of every description in every variety of materials, size, and colour, warranted to stand any weather; a specimen of writing and gilding on glass for ornamental and decorative purposes, also enamelling and embossing on glass and tablets; a specimen of writing on card-board for prize tablets, explanations and prices of articles, in any colour and size, for frames and waterproof; miscellaneous articles and patterns.

Spencer, Read, & Co., of 4, Agar-street, Strand, London.

Photographs of machinery, prize cattle, working drawings, &c.

William Waller, of Uddingston, near Hamilton, Lanarkshire, N.B.

(New implements), patent swing ploughs, patented and improved by "Delta," and manufactured for the exhibiter, price with six cast iron shares, exclusive of carriage, 3l. 15s. and 5l. 17s. 6d.; a Scotch swing plough, price 4l. 12s. 6d.; an improved Scotch swing plough (the Clydesdale), improved and manufactured by Robert Law, of Shettleston, price 5l.; a Scotch plough fitted with wheels, manufactured for the exhibiter, price 5l. 12s. 6d.; an improved two horse swing plough for general purposes, improved and manufactured by Robert Law, of Shettleston, price 3l. 17s. 6d.; (new implement), a patent subsoil plough or pulverizer, patented and improved by "Delta," and manufactured by Robert Law, of Shettleston, price 6l.; a subsoil plough or pulverizer for two horses, manufactured for the exhibiter, price with lever complete 7l. 10s.; a subsoil plough or pulverizer for two horses, improved and manufactured by Robert Law, of Shettleston (awarded the first prizes of the Highland Society in 1857 and 1858), price 7l; parts of the patent "Delta" plough, patented and improved by "Delta," price 1l. 11s. 6d.; a drill or double mould board plough, manufactured for the exhibiter, price exclusive of carriage 3l. 15s., extra for marker 10s., extra for wheel 7s. 6d.; (new implement), a patent drill plough or double mould board or ridging plough, price without wheel 3l. 10s., with one wheel 3l. 16s. 6d., with two wheels 4l. 4s., extra for marker, chain, and fixings 10s.; (new implement), a patent drill plough with marker, price 4l.; (new implement), a patent potato plough, price without wheel 4l. 10s.: (new implement), a patent harrow for one horse, price 2l. 7s. 6d., and (new implement) a patent harrow for two horses, price 4l. 12s. 6d., patented and improved by "Delta," and manufactured for the exhibiter; quoit or chain harrows, invented by Mr. Smith, of Deanston, improved and manufactured by Robert Law, of Shettleston, price 3l. 15s. and 4l. 10s.; a potato or saddle harrow, designed and manufactured for the exhibiter, price 2l. 7s. 6d.; (new implement) a set of patent "Excelsior" harrows, invented and patented by J. Seaman, of Hertford (late foreman to Messrs. J. and F. Howard, of Bedford), and manufactured by J. Blinman, of Hertford (late of N. S., of America), price 4l.; (new implement) a drill grubber and earthing-up plough, in one implement, invented, improved, and manufactured by Robert Law, of Shettleston, price 5l.; a small expanding drill grubber, improved and manufactured by Robert Law, of Shettleston, price 3l. 12s. 6d.; a small three-tined grubber or horse-hoe, price 2l. 16s. 6d., if with wheel 6s. 6d. extra; a light five-tined drill-grubber, price with one wheel 3l. 10s., and a drill grubber, price 4l. 5s., manufactured for the exhibiter; a light field grubber, invented by John Tennant, of Shields, improved and manufactured for the exhibiter, price with one wheel 4l. 15s.; a strong field grubber, invented by John Tennant, of Shields, improved by Robert Law, and manufactured for the exhibiter, price with one wheel 5l. 5s., two front wheels 7s. 6d. extra, two hind wheels 15s. extra, lever for adjusting front wheel 1l. extra; (new implement) a large field grubber on wheels, manufactured for the exhibiter, price 10l. 10s.; a metropolitan washing machine, improved and manufactured by R. L. Allen, of New York, price 3l. 10s.; (new implement) a patent self-acting cheese press, patented and improved by "Delta," and manufactured for the exhibiter (awarded the silver medal of the Ayrshire Agricultural Association, April 26, 1859), price 3l. 3s. to 5l. 18s.; a thermometer churn, improved and manufactured by R. L. Allen, of New York, price 1l. 16s.; (new implement) a curd breaker, improved and manufactured for the exhibiter, price 2l. 15s.; (new implement) a patent cheese-making apparatus, invented by Henry Waller, of Lickhill, and manufactured for the exhibiter, price 12l. 10s.; (new implements) kitchen presses, invented by Mr. Jenks, of New York, and manufactured by R, L. Allen, of the same place, price 18s. to 1l. 15s.; an American beefsteak beater and masher, price 1s. 9d.; (new implement) a patent self-relieving horse-rake for hay or stubble, patented and improved by "Delta," and manufactured for the exhibiter, price 2l. 6s.; an American patent root cutter, invented by Willard, of New York, and manufactured by R. L. Allen, of New York, price 4l. 10s.; (new implement) a hand seed planter for all kinds of grain, or one-row drill, manufactured by R. L. Allen, of New York, price 5l. 17s. 6d.; (new implement) patent folding ladder, price 1s. 3d. per foot, and (new implement) a patent fruit gatherer, price 4s. 6d., manufactured for the exhibiter; (new implement) a patent automaton apple parer, invented and improved by R. L. Allen, of New York, and manufactured by the exhibiter, price 7s. 6d.; (new implement) an apple or potato peeler, price 5s.; tube brushes for portable engines, manufactured for the exhibiter, price 28s. per dozen, or 2s. 6d. each and upwards; a patent squeegee for scrubbing floors, &c., invented by Lumb, and manufactured by Perreaux and Co., of London, price 5s. each; a bundle of Canadian hay rakes, manufactured in Canada West, price 1s. 10d. each.

John Smith, of Coven, near Wolverhampton, Staffordshire.

(New implement) a twelve-horse power locomotive or traction steam engine, invented by John Smith, jun., of Coven, improved and manufactured by the exhibiter, price 420*l.*; (new implement) a steam plough of twelve-horse power, invented by John Fowler, jun., of 28, Cornhill, London, improved by the Steam Engine, Windlass, and Anchor Company, manufactured by the exhibiter, and the ploughs, &c., manufactured by Messrs. Ransomes and Sims, of Ipswich, price 780*l.*; (new implement) a patent windlass, invented by John Fowler, jun., of 28, Cornhill, London, and manufactured by the exhibiter, price 105*l.*

Henry Hayes and Son, of Stamford, Lincolnshire.

An improved Scotch cart (highly commended by the judges of the Royal Agricultural Society at Salisbury, also obtained the prize of the North Lincolnshire Agricultural Society, 1857, and at Grantham, 1858), price 13*l.* 15s.; an improved one or two-horse cart, price 14*l.* 10s., a light spring lorrie or dray, price 30*l.*, and an improved pair-horse waggon, price 42*l.* 10s., seat 20s. extra, all invented improved, and manufactured by the exhibiters; (new implement) an improved iron plough, manufactured by T. G. Mason, of Stamford, price with two wheels complete 4*l.* 5s.

Thomas R. and R. Hunt, of Earl's Colne, near Halsted, Essex.

An improved machine for hulling clover and trefoil seed, invented by Constable, of Cambridge, improved and manufactured by the exhibiters (received the prize of £2 at the Bath and West of England Show, 1855, and the Society's silver medal at Carlisle the same year), price £45; a corn dressing machine, improved and manufactured by the exhibiters, price £8 8s.; one-horse gears, invented, improved, and manufactured by the exhibiters, price £9 9s. and £11 11s.; a hand-power chaff cutter, improved and manufactured by the exhibiters, price £2 12s. 6d.; (new implement) a root pulper, price £4 10s.; a one-row hand-cut drill, price £2 10s.; a seven-row pony drill, price £10 10s.; a bundle of Essex improved scythes (12-inch), price 11s. 6d., and a two-row cup-drill, price £3 3s., all invented, improved, and manufactured by the exhibiters.

Ruston, Proctor, and Co., of Sheaf Iron Works, Lincoln.

An eight-horse power portable steam engine, price £225; a 2½-horse power portable steam engine, price £100; a patent prize portable combined thrashing and dressing machine, price £115; two sizes of an improved portable grinding mill, price £42 and £34 13s., if fitted with French burr stones £5 5s. extra, and two sizes of an improved portable circular-saw bench, price £14 14s. and £35, all invented, improved, and manufactured by the exhibiters.

Charles Thomas, of Stratford-on-Avon, Warwickshire.

Several specimens of a registered flexible saddle, invented by Mr. A. Newland, of Stratford-on-Avon, and improved and manufactured by the exhibiter, price complete £5 15s. and £6 6s.; a curb Pelham, invented and manufactured by the exhibiter, price, with head and reins complete, £1 8s.; a Hanoverian Pelham, of improved construction, price £1 6s., and an Achilles bit, price 10s. 6d.

Thomas Hitherly, of Thrussington, Loughborough, Leicestershire.

A wood and an iron plough, with steel turn-furrows 4 feet long, each with 2 wheels and skim coulters and lap chain, price with steel turn-furrow 4 feet long, with 3 extra cast shares, £3 17s. and £4 17s. 6d., skim coulters 5s. and lap chain 2s. extra, both improved and manufactured by the exhibiter.

Thomas Perry and Son, of Highfields Works, near Bilston, Staffordshire.

Several specimens of continuous fencing for sheep, cattle, oxen, and deer, at prices from 2s. to 4s. 1d. per yard, several specimens of wrought-iron hurdles for sheep, oxen, and gardens, some of them game-proof, at prices from 3s. 9d. to 10s. 6d. each; several lengths of strained wire fences for sheep, oxen, deer, &c., at prices from 1s. 1d. to 2s. 4d. per yard; several specimens of wrought-iron field entrance and park gates, with or without pillars, at prices from £1 12s. 6d. upwards; wrought-iron tree guards at £1 each; game-proof plant guards, price from 18s. to 58s. per dozen; two garden seats, price £1 and £1 5s.; an iron and wire ornamental garden chair, price £2 10s.; a folding garden or camp stool, price 5s. 6d; a folding stool, price 10s. 6d.; a wrought-iron folding, garden, or fishing chair, price 6s.; game-proof wire-netting, price light 1d., strong 1½d., extra strong 2d. per superficial foot; galvanized poultry netting, price from 4½d. to 8¼d. per lineal yard; galvanized pheasantry netting, price ¾ inch mesh 3d., ⅞ inch mesh 2½d., 1 inch mesh 2¼d. per foot; sheep netting, price 7½d. and 11d. per yard; iron poultry hurdles, price 5s. 2d. each; two iron wheelbarrows, price £1 7s. and £2 10s.; a wrought-iron clothes post and socket, price 15s.; an iron lifting jack for carriages, &c., price 15s.; a patent sheep-feeding, folding and housing hurdle, price £3 10s.; three wrought-iron sheep troughs, price £1, £1 10s., and £1 15s.; an iron vermin-proof rickstand, price £4; an oblong rickstand, price £4 7s. 6d.; a cast-iron rickstand pillar and cap for wood-frame top, price 3s. 6d.; a fire-proof book safe, price £10 10s.; and a fire-proof deed box, price £4 15s., all invented and manufactured by the exhibiters.

Picksley, Sims, and Co, of Leigh, Manchester, Lancashire.

Several specimens of a chaff-cutting machine, price 2*l.* 5s. to 15*l.*; a gorse, whin, or furze cutter, price 7*l.* 12s. 6d., pulley 9s. extra; (new implement) a combined litter and chaff cutter, price 16*l.* 10s., pulleys 1*l.*; a linseed and malt mill, price 4*l.* 15s.; three sizes of a kibbling mill, price 6*l.* to 10*l.*, invented, improved, and manufactured by the exhibiters; (new implement) a gorse and grain bruiser, price 12*l.* 12s., invented by John Hardley, of Isle of Wight, improved and manufactured by the exhibiters; a kneading machine, price 5*l.* 5s., invented, improved, and manufactured by Chas. Quinton, of Cheltenham; (new implement) two sizes of a corn mill, price 12*l.* 12s. and 18*l.* 18s., invented by John Hardley, Isle of Wight, improved and manufactured by the exhibiters; two sizes of a turnip slicer, price 4*l.* 18s. 6d. and 3*l.* 18s. 6d., invented, improved, and manufactured by the exhibiters (it was highly commended at Chester, took the first prize at the Royal Scotch Show, Aberdeen, highly commended by the Society's medal at the Royal Irish Show, Londonderry, as no prizes were given, first prize Royal North Lancashire Show, and the first prize at Southport, Horwich, and other local shows); (new implement) a bone mill, price 27*l.* 10s., invented by Rea and Burns, of Liverpool, improved and manufactured by the exhibiters; a root grater, price 5*l.* 5s., invented by Moody, improved and manufactured by the exhibiters; (new implement) four sizes of a patent lawn mower, price 5*l.* 10s. to 7*l.*; a washing, wringing, and mangling machine, price 5*l.* 5s., invented, improved, and manufactured by the exhibiters; and a wringing and mangling machine, price 4*l.* and 5*l.* 5s., invented, improved, and manufactured by the exhibiters; (new implement) a patent mangle, price 11*l.*, invented by Baker of London, improved and manufactured by the exhibiters; horse gears, price 13*l.* and 18*l.*; two field roller, price 11*l.* and 14*l.*; garden chairs, price from 16s. 6d. to 2*l.* 10s.; heavy garden rollers, price from 1*l.* 10s. to 4*l.* 17s. 6d.; revolving pig troughs, price from 12s. 6d. to 1*l.* 1s. 6d.; poultry pots, price 2s. 9d. and upwards; a set of rick stand pillars, price 3s. 6d. each; a corner manger, price 5s. 9d.; a corner hay rack, price 6s. 9d.; a flat manger, price 11s. 3d.; a flat hay rack, price 6s. 9d.; an improved manger rack and gruel pot, price 1*l.* 14s.; an improved basin trap for a stable, price 2s. 10d.; and a stench trap, price 1s. 6d., all invented, improved, and manufactured by the exhibiters; a 2½-horse engine, price 85*l.*, invented, improved, and manufactured by Wm. Cambridge, of Bristol; a 4-horse works, in motion, price 22*l.*; and a chaff-cutter, price 10*l.* 14s., invented, improved, and manufactured by the exhibiters; a gorse and grain bruiser, price 13*l.* 4s., and a corn mill, price 13*l.* 4s., both invented and improved by Hardley, of the Isle of Wight, and manufactured by the exhibiters; an oat bruiser, price 11*l.*, invented, improved, and manufactured by the exhibiters; a turnip slicer, price 4*l.* 18s. 6d.; smith's water fire irons, price 1*l.* 14s. and 2*l.* 5s.; a set of boskin posts and pillars, price 1*l.* 16s.; and a lawn mower, price 6*l.*, invented by E. Budding, improved and manufactured by the exhibiters.

BARTON and SON, of the Crescent Coach Factory, Carlisle, Cumberland.

An unpainted dog car, price 30*l*.; an unpainted car, price 28*l*.; a tandem car, price 24*l*.; a Chester car, price 30*l*.; and a Victoria car, price 28*l*., all invented, improved, and manufactured by the exhibiters; a border car, price 30*l*.

WILLIAM BROWN and CHARLES N. MAY, of North Wilts Foundry, Devizes.

An 8-horse portable steam engine, price 210*l*. (commended by the judges of the Royal Society last year at the Chester Meeting); a 2½-horse power portable steam engine, price 70*l*.; and (new implement) a patent double-action haymaking machine, price 14*l*. 14s., manufactured by the exhibiters; (new implement) a patent brick-making machine, price 100*l*.; a Waller's patent cheese-making apparatus or tub, price 10*l*., invented by Henry Waller, of Lickhill, Calne, and manufactured by Messrs. Wilkins, of Calne; a 9-inch patent sluice cock or valve, price 4*l*. 14s. 6d.; a 2-inch patent ditto, price 1*l*. 5s.; and a patent hydrant or street main cock, price 1*l*. 10s., manufactured by the exhibiters; a patent heat indicator, price 13s., invented by C. N. May, of Devizes, and manufactured by George Salter, of West Bromwich.

WILLIAM CULLINGFORD, Ball's Pond-road, Islington, Middlesex.

A sheep-folding net, made of cocoa-nut fibre, 4 feet wide, 200 yards long, 6d. per yard; another kind 4½d. per yard; a lamb-folding net, 6d. per yard; a sheep-folding net, made of best hemp, 6d. per yard; a bat-folding net, with bamboo poles, complete, price 1*l*.; other kinds down to 5s.; a pair of clap nets for catching birds, of all kinds, on the ground, price 1*l*.; with pull line, stop cord, staves, and pegs, &c., complete, price 1s. 10s.; a spring bird trap, price 7s. 6d. to 1*l*. 5s.; a drag net, price 4*l*. down to 1*l*.; a flue net, price 2*l*. 10s.; a casting net, price 15s. to 1*l*. 7s.; a carp and tench galvanised iron-hooped net, price 15s.; an eel net, galvanized iron hoops, price 15s.; a hexagon garden net, price 1*l*. 18s. 3d.; an extra stout small mesh net, 6d. per square yard; a square mesh shading net, 8d. per yard; a patent wool net, for protecting the blossom of fruit trees, &c. from frost, 8d. per yard; a hemp 1-inch mesh new twine garden net, 8d. per yard; a ¾-inch mesh hemp garden net, 1s. 4d. per yard; a 1-inch mesh cotton garden net (any width) 2s. 6d. per yard; a hare or rabbit net, price 1*l*. 15s.; a rabbit net for cover shooting, price 1*l*. 5s.; a wire rabbit or poultry fencing net, 5d. per yard; a wire sheep and cattle fencing net, 9d. per yard.

DAVID THOMAS JONES, of Headless Cross, near Redditch, Worcester.

A plough, generally known as the wood and iron plough, price without extra castings, as shares, &c., £3, invented by W. Troth, of Brearly, Warwickshire, and improved and manufactured by the exhibiter; a combined subsoil and ridging plough, price without castings £2 10s., invented and manufactured by the exhibiters.

The TRUSTEES of W. CROSSKILL, of Beverley Iron Works, Beverley, Yorkshire.

An improved Norwegian harrow, price £15 15s., improved by W. Crosskill, and manufactured by the exhibiters (awarded the silver medal by the Royal Agricultural Society of England at York, and included in the award of the council great medal at the Great Exhibition of 1851); a Ducie drag or Uley cultivator, price £12 12s., steel shares 6s. extra, invented by John Morton, of Whitfield, improved by Richard Clyburn, of Uley, and manufactured by the exhibiters (awarded the first prize of £15 at Liverpool, £10 at Southampton, £10 at Shrewsbury and £10 at Newcastle, by the Royal Agricultural Society of England); a patent clod crusher or serrated roller, price £16 10s., or with travelling wheels £18 10s., invented and improved by W. Crosskill, and manufactured by the exhibiters (awarded by the Royal Agricultural Society of England the first prize of £20 and the silver medal at Southampton, £10 at Shrewsbury, the special gold medal at a meeting of the council after the Newcastle meeting, and £2 as the best heavy-land crusher at Chelmsford, also awarded the council great medal at the Great Exhibition of 1851); a plain roller, price £11 11s., and an improved plain roller, price £14 10s., both improved and manufactured by the exhibiters; several specimens and sizes of patent cart wheels and axles, price £6 10s. to £8 5s., all improved by W. Crosskill, and manufactured by the exhibiters (awarded by the Royal Agricultural Society of England the silver medal at Derby and Newcastle); a Newcastle prize or model one-horse cart, price £15 15s. and under (awarded by the Royal Agricultural Society of England the silver medal at Lincoln, and the first prize of £5 at Newcastle); and a York prize one-horse cart, price from £12 10s. to £16, all invented and improved by W. Crosskill, and manufactured by the exhibiters (awarded the first prize by the Yorkshire Agricultural Society at York, 1853); an improved rung-sided one-horse cart, price £12 5s., improved by W. Torr, Esq., of Aylesby, and manufactured by the exhibiters; an improved Hannam's harvest cart, price £14 10s, invented by J. Hannam, Esq., of Burcott Park, Oxon, and improved and manufactured by the exhibiters; an improved Bedfordshire one-horse cart, price £14, improved and manufactured by the exhibiters; an improved two-horse cart, price £17, improved by W. Crosskill, and manufactured by the exhibiters; a light one-horse cart, price £12 15s., improved and manufactured by the exhibiters; an improved market cart, price £17 10s., improved by W. Crosskill, and manufactured by the exhibiters; two improved sporting carts, price £18 18s. and £25, and a light lorrie or rulley, price £30, all improved and manufactured by the exhibiters; an improved pair-horse waggon, price £29 10s. with single shafts or pole, and £32 10s. with double break, invented and improved by W. Crosskill, and manufactured by the exhibiters (awarded by the Royal Agricultural Society of England the first prize of £10 at Norwich, £10 at Exeter, £5 at Lewes, and £10 at Gloucester); and improved Yorkshire waggon, price £37 with single shafts, or £39 with deep side and end-boards; and an improved Wiltshire waggon, price £32 10s., both improved and manufactured by the exhibiters; an improved liquid manure or water cart, price £17, or with portable pump and leather pipe £22 15s., invented by W. Crosskill, and improved and manufactured by the exhibiters (awarded the silver medal by the Royal Agricultural Society of England at Cambridge; an improved street watering cart, price £20, or with springs £22 15s., improved and manufactured by the exhibiters; an improved pump, price with seven feet of leather hose and three feet of copper tube £5 15s.; and a patent portable farm railway, price 4s. per running yard, both invented and improved by W. Crosskill, and manufactured by the exhibiters (awarded by the Royal Agricultural Society of England the silver medal at Norwich and Exeter); (new implement) a new patent portable or endless railway, price £65, invented by Robert Romaine, of 36, Ely-place, Holborn, London, and manufactured by the exhibiters; an Archimedian root washer, price £5 10s., invented by Capt. Carr, improved by W. Crosskill, and manufactured by the exhibiters (awarded the silver medal by the Royal Agricultural Society of England at York); an improved reaping machine, price with two complete knife bars and six extra knives £42, invented by the Rev. P. Bell, of Carmylie, and improved and manufactured by the exhibiters (awarded by the Royal Agricultural Society of England the first prize of 20*l*. at the adjourned trial (two days) of the Gloucester meeting at Pusey, 20*l*. at the adjourned trial (two days) of the Chelmsford meeting at Boxted Lodge, and 6*l*. at Salisbury); an improved corn dressing or winnowing machine, price £8 10s., improved by W. Crosskill, and manufactured by the exhibiters; an improved Yorkshire bone mill for steam or water power, price £165 (awarded the first of 10*l*. by the Royal Agricultural Society of England at Chester); another size, £85; and an improved band or endless saw, price £50, all improved and manufactured by the exhibiters.

CLAYTON, SHUTTLEWORTH, and Co., of Stamp End Iron Works, Lincolnshire.

Two 10-horse power outside double cylinder portable steam engines, price £290 and £295; two ditto 8-horse power, price £250 and £255; two 8-horse power outside single cylinder portable steam engines, price £230 and £235; two ditto 7-horse power, price £215 and £220; two ditto 6-horse power, price £200 and £205 (received the prize of 25*l*. at the Society's meeting held at Norwich in 1859, 25*l*. at Exeter in 1850, and a prize medal at the Great Exhibition of 1851); a ditto 5-horse power, price £180; a 6-horse power fixed steam engine, price exclusive of carriage, brickwork or masonry, but inclusive of fixing, 160*l*; a ditto 8-horse power, price 200*l*. (received the first prize of 20*l*. at the Society's meeting at Gloucester in 1853); a ditto 10-horse power, price 240*l*.; a combined portable single-blower thrashing, straw-shaking, riddling, winnowing, chaff separating, and barley horning machine, price 100l. (obtained a prize of 20l. at the Society's meeting held at Lewes in 1852, 20l. at Lincoln in 1854, and the first prize of 15l. offered by the Society for the best machine of this class at Chester in 1858); a combined portable single-blower finishing machine, price mounted on wood travelling wheels 110l.; a ditto double-blower ditto, price 120l. (obtained a silver medal at the Society's meeting at Carlisle, 1855, and the first prize of 15l. at Chester, 1858; a combined fixed ditto or fixed barn works, price exclusive of carriage and fixing, but inclusive of supporting frame, 118l. 10s. (received a silver medal and 10l. at the Society's meeting held at Lewes in 1852, a silver medal at Gloucester in 1853, 20l. at Lincoln in 1854, 20l. at Carlisle in 1855, and the first prize of 10l. offered by the Society for the best machine of this class at Chester in 1858); three portable grinding mills for steam-power, price 47l. 10s., 67l. 10s., and 82l. 10s. (received the prize of 10l. at the Society's meeting held at Norwich in 1849, 10l. at Exeter in 1850, 10l. at Gloucester in 1853, 5l. at Lincoln in 1854, 5l. at Carlisle in 1855, and the commendation of the judges at Chester in 1858); (new implement) an improved self-acting circular-saw bench, price with 42in. saw 65l.; and an improved portable ditto, price 20l., all invented, improved and manufactured by the exhibiters; an improved portable straw elevator, price mounted on iron travelling wheels 59l., if fitted with wood wheels 5l extra, invented by James Hays, of Elton, and improved and manufactured by the exhibiters.

JAMES FARDON, of Kenilworth, Warwickshire.

A plough, price 10l. 10s., invented and manufactured by the exhibiter.

JOHN FOWLER, Jun., of 28, Cornhill, London.

Two sets of 8-horse steam cultivating apparatus, price 455l. 10s. and 527l. 10s., and a ditto 10-horse, price 622l., invented by the exhibiter, and manufactured by Clayton, Shuttleworth, and Co., of Lincoln, and R. Stephenson and Co., of Newcastle-on-Tyne; a detached windlass, price 280l, invented by Eddington, of Chelmsford, Essex, improved by the exhibiter, and manufactured by R. Stephenson, of Newcastle-on-Tyne; a set of windlass gears, price 105l., invented by the exhibiter, and manufactured by R. Stephenson and Co., of Newcastle-on-Tyne; a balance 2, 3, and 4-furrow Plough, fitted with scarifier irons, price 52l. 10s., 61l. 10s., and 81l.; a balance 3-furrow plough, price 105l.; and a scarifier, price 26l., all invented by the exhibiter, and manufactured by Ransomes and Sims, of Ipswich.

BENJAMIN HITTMER, of Fulstow, Louth, Lincolnshire.

A corn-dressing machine, price 9l., improved and manufactured by the exhibiter.

LOOMES and COMPANY, of Whittlesea, Cambridgeshire.

Draining pipes, price 16s., 45s. and 75s. per 1,000, manufactured by the exhibiter; a model roof covered with patent tiles, price 14s. per square of 100 feet, invented by Messrs. Norton and Boovie, of London, and manufactured by the exhibiter; a garden border edging (Loomes's cable pattern), price: straight tiles 5d., bends 6d., if fitted to plan 7d. per yard, designed by Edward Loomes, of Whittlesea, and manufactured by the exhibiters; water and sewage pipes, price 3d. and 2d. per foot; roofing tiles, price: common pan 50s., flat pan 60s., plain 32s. 6d. per 1,000, manufactured by the exhibitors.

JAMES HAYES, of Elton, near Oundle, Huntingdonshire.

(New implement) a patent portable straw elevator, price 64l.; three sizes of a portable corn grinding mill, price 18l. 10s. to 51l. 10s.; and a flour dressing machine, price 18l., all invented, improved, and manufactured by the exhibiter.

THOMAS NALDER, of Challow Works, near Wantage, Berkshire.

A portable combined thrashing, shaking, riddling, winnowing, and barley horning machine, price on wood wheels 95l., invented, improved, and manufactured by the exhibiter; two specimens of Nalder's patent corn separator and blower, price £8 8s. and £9 9s., invented by J. H. Nalder, of Alvescott, and improved and manufactured by the exhibiter (obtained a silver medal at the Carlisle meeting, as attached to Clayton and Co.'s combined thrashing machine).

JOSHUA REA and ROBERT BURNS, of Liverpool, Lancashire.

A 4-horse patent bone rasping mill, for steam, water, or horse power, price 72l. 10s.; a patent bone cutting and rasping mill of 2-horse power, for steam, water, or horse power, price 52l. 10s. (obtained the special silver medal at Waterford, August, 1857, and at Londonderry, August, 1858, also a prize of 2l. at the Manchester and Liverpool meeting in September, 1857); (new implement) a ditto 1-horse power ditto, price 27l. 10s., all invented by Robert Burns, of Liverpool, improved by the exhibiters, and manufactured by Picksley, Sims, and Co., of Leigh, Lancashire.

THOMAS SCRAGG, of Calveley, near Tarporley, Cheshire.

A single-action drain tile and pipe making machine, price 20l., invented, improved, and manufactured by the exhibiter; six bell socket draining pipe of 2 inch bore, price 18s. 6d. per 1000; and (new implement) a testing machine to test draining pipes, price 15s., both invented and manufactured by the exhibiter; three sizes of six draining pipes of 2, 4, and 6-in. bore each, price 16s. 6d., 2l., and 5l. per 1000, manufactured by the exhibiter.

WARREN SHARMAN, of Melton Mowbray, Leicestershire.

Improved registered tubular iron hand hay and corn rakes, price 16s. 6d., invented, improved, and manufactured by the exhibiter; wood drag rakes (painted red) with best iron screwed teeth, price 10s. and upwards, manufactured by the exhibiter; improved registered tubular iron twitch or garden rakes, price 48s. per dozen with shafts, without shafts 42s., invented, improved, and manufactured by the exhibiter; japanned iron and galvanized iron buckets, price japanned iron 12s. and 20s., galvanized iron 18s. and 27s. per dozen, manufactured by the exhibiter; japanned iron root or chaff scuttle measures, price 30s. to 63s. per dozen; (new implement) new-shaped chaff scuttles with double handles, price 96s. per dozen; and japanned and galvanized filling scuttles, price japanned 30s. and 36s., galvanized 36s. and 48s. per dozen, all invented, improved, and manufactured by the exhibiter; ditto iron baskets for farm and household purposes, japanned 30s., galvanized 36s. per dozen; a poultry fountain with 2 or 3 outlets, price 10s. 6d. and 13s.; three sizes of a circular corn or flour bin, price 17s., 20s., and 25s.; wrought iron wheelbarrows (two shapes), price 27s.; and an assortment of sack trucks, in iron and wood, price 12s. iron, 15s. wood, all manufactured by the exhibiter; (new implement) a simple and complete hot-water apparatus, for forcing plants and heating greenhouses, price 3l. 3s., invented and manufactured by the exhibiter; a garden chair, with arms and footboard, price 1l. 2s., manufactured by the exhibiter.

ROBERT T. SMITH, of Whitchurch, Salop.

A combined thrashing machine, price 105l., invented, improved, and manufactured by the exhibiter; a six-horse power portable steam engine, price 200l., invented, improved, and manufactured by Robert Bach and Co., of Birmingham.

WILLIAM SNOWDEN, of Longford, near Gloucester.

A patent paring plough, complete for all land paring purposes, price 7l. 7s. (awarded a silver medal by the Royal Agricultural Society in 1858, and received eleven other prizes, medals, and awards from different agricultural societies in the same year); a patent single stubble parer and surface pulverizer, price 5l. 10s.; (new implement) a patent lever double stubble parer and land pulverizer, price 8l. 10s.; and (new implement) a patent lever general purpose plough, price 7l. 15s., all invented by William Woofe, of Western Birt, Gloucestershire, and manufactured by the exhibiter—sole patentee.

Messrs. AMIES and BARFORD, of Queen-street, Peterborough, Northamptonshire.

A Stanley's registered roller mill, for crushing corn, malt, linseed, and for splitting beans, price 12l., smaller size 7l. 10s. (it obtained a medal at the Great Exhibiton in 1851, and at the Paris Exposition in 1855, and at more than fifty local shows during the last ten years); and a Stanley's registered farmers' steaming and cooking apparatus, price 17l. 10s., invented by the late W. P. Stanley, of Peterborough, improved and manufactured by the exhibiters (a prize of 300 francs and a gold medal were awarded to this apparatus at the Paris Exposition in 1855); a set of iron outlet pipes, &c., for an improved system of land drainage, price 3*l.* 3s. per set (invented by J. Bailey Denton, Esq., of Stevenage, improved and manufactured by the exhibiters); a Cambridge's patent clod crusher, price 10*l.* to 14*l.*, invented by W. Cambridge, of Bristol, improved and manufactured by the exhibiters; wrought-iron cylinder land rollers, price 7*l.* to 13*l.*; a two-horse cast cylinder land roller, price 12*l.* 10s.; a cast cylinder land roller, price 6*l.*; and (new implement) a new combined sack-barrow and elevator, price 2*l.* 15s., all invented, improved, and manufactured by the exhibiters.

John Phillips Barford, near Banbury, Oxfordshire.

A patent clod crusher, price 19*l.* 10s., invented and improved by William Crosskill, Beverley, and manufactured by Ransomes and Sims, of Ipswich; a patent cultivator or scarifier (wrought iron) price 13*l.*, a smaller size 7*l.* (gained the prize of 5*l.* at the Royal Agricultural Society's show at Carlisle, 1855, also a prize of 3*l.* at the Chelmsford show, 1856), invented, improved, and manufactured by R. Coleman, Chelmsford; a Bedfordshire scarifier, price 7*l.* 7s., improved and manufactured by the exhibiter; a patent broadshare and subsoil plough, price 6*l.* 16s. 6d., invented, improved, and manufactured by E. H. Bentall, of Heybridge; a patent one-horse parer, price 7*l.* 7s., invented by William Woofe, of Weston Birt, and improved and manufactured by Wm. Snowden, of Longford; a solid beam plough with draught rod, and a lighter solid beam plough, price 4*l.* 17s. 6d. and 4*l.* 7s. 6d., both invented, improved, and manufactured by Ransomes and Sims, of Ipswich (the latter was awarded the prize of 2*l.* at the meeting of the Royal Agricultural Society at Chelmsford, 1856, as a light land plough); a patent iron plough, price 4*l.* 12s. 6d., invented, improved, and manufactured by J. and F. Howard, of Bedford (awarded the first prize, for light land, also for general purposes, at the Royal Agricultural Society's meeting at Chelmsford, 1856); a patent plough, price 4*l.* 8s., invented, improved, and manufactured by William Ball, of Rothwell; a patent ridge or double breast plough, price 4*l.* 15s. (received the Royal Agricultural Society's prize at Chelmsford, 1856), and a patent iron dwarf plough, price 3*l.* 3s., invented, improved, and manufactured by J. and F. Howard, of Bedford; a patent Archimedian subsoil plough, price 6*l.* 12s. 6d., invented by Lord C. Beauclerk, and improved and manufactured by Ransomes and Sims, of Ipswich (this plough received the Royal Agricultural Society's at Chelmsford, 1856); a horse hoe, price 3*l.* 5s., invented, improved, and manufactured by J. and F. Howard; a steerage horse hoe, price 7*l.*, invented by Wm. Smith, of Kettering, and improved and manufactured by the exhibiter; a set of patent four-beam harrows, price 3*l.* 6s. (nine first prizes have been awarded to these harrows by the Royal Agricultural Society); and a set of patent jointed harrows, price 4*l.*, invented, improved, and manufactured by J. and F. Howard, of Bedford; a set of heavy East Anglian harrows, price 5*l.* 5s., invented, improved, and manufactured by Ransomes and Sims, of Ipswich (awarded a prize at the Royal Agricultural Society's meeting at Chelmsford, 1856); a pair of three-beam strong drag harrows, 7 feet wide, price 6*l.*, and a patent horse rake, price 8*l.* 10s., invented, improved, and manufactured by J. and F. Howard, of Bedford; an improved horse rake, price 8*l.* 10s., invented, improved, and manufactured by Ransomes and Sims, of Ipswich (awarded the first prize by the Royal Agricultural Society at Salisbury, 1857): a patent poppy and weed extirpator and fertilizing lever harrow, price 9*l.* 9s., invented by Frederick Phillips, of Brandon, and improved and manufactured by James Woods, of Stowmarket (awarded the Society's silver medal at the Chelmsford meeting, 1856); a patent double-action and reverse-motion hay machine, price 15*l.* 15s., invented, improved, and manufactured by Smith and Ashby, of Stamford (this machine received the first prize offered by the Royal Agricultural Society ten years in succession); a patent double-action and reverse-motion haymaking machine, price 15*l.*, invented, improved, and manufactured by W. N. Nicholson, of Newark (awarded the first prize last offered by the Royal Agricultural Society at Salisbury, 1857); a patent corn dressing and winnowing machine, price 13*l.* 10s., invented, improved, and manufactured by Richard Hornsby and Sons, of Grantham (this machine has received seven first prizes, and the last offered by the Royal Agricultural Society); a patent corn dressing and winnowing machine, price 14*l.*, invented, improved, and manufactured by Joshua Cooch, of Harleston (this machine obtained the first prize of 10*l.* at the Liverpool meeting, 1841, also the prize of 15*l.* at the Northampton meeting, 1847); a barley aveller, price 4*l.* 8s., invented, improved, and manufactured by Holmes and Son, of Norwich; a broadcast clover and grass seed distributor, price 3*l.* 8s., improved and manufactured by Barrett, Exall, and Co., of Reading; a ten-row patent corn and seed drill, price 28*l.*, invented, improved, and manufactured by Richard Hornsby and Sons, of Grantham (received a council medal at the Great Exhibition of 1851, and five prizes from the Royal Agricultural Society); a patent six-row corn and seed drill, price 19*l.*, invented, improved, and manufactured by William Hensman and Son, of Linslade, Beds; a two-row patent drill for dry manure and seeds, price 9*l.*, invented, improved, and manufactured by R. and J. Reeves, of Bratton (a silver medal was awarded to this machine at Salisbury, 1857); a patent four-row liquid-manure and seed drill, price 28*l.* 10s., invented by Thomas Chandler, of Aldbourn, improved and manufactured by R. and J. Reeves, of Bratton (five first prizes and a silver medal have been awarded to this drill by the Royal Agricultural Society); a one-row hand turnip and mangold cup drill, price 2*l.* 10s., invented, improved, and manufactured by T. and R. Hunt, of Earls Colne, Essex; a patent bean cutter, price 4*l.* (awarded the Society's silver medal at Gloucester); a combined bean and oat mill, price 6*l.* 6s., and a patent universal mill, price 9*l.* 10s., invented by J. A. Biddell, of Ipswich, improved and manufactured by Ransomes and Sims, of Ipswich; a registered chaff cutter, with three knives, price 13*l.* 13s., invented, improved, and manufactured by James Cornes, of Barbridge (awarded the first prize at the Chester show, 1858, and the first prize, 11 years in succession previously, by the Royal Agricultural Society); (new implement) an improved chaff machine, price 10*l.* 10s., invented and manufactured by Joseph Gardner, of Banbury; an improved chaff machine, price 10*l.* 10s., invented, improved, and manufactured by Richmond and Chandler, of Salford; a chaff machine, price 6*l.*, invented, improved, and manufactured by Picksley, Sims, and Co., of Leigh; a patent chaff cutter, price 5*l.* 5s., improved and manufactured by Ransomes and Sims, of Ipswich (awarded a prize at the Chester Show); a chaff cutting machine, price 3*l.* 15s., invented, improved, and manufactured by Richmond and Chandler, of Salford; a cheap chaff cutter, price 2*l.* 8s., improved and manufactured by the exhibiter; an oil cake crusher, for beasts and sheep, price 5*l.*, invented by W. N. Nicholson, of Newark, improved and manufactured by the exhibiter; an oil cake crusher, price 4*l.* 10s., invented and improved by G. A. Biddell, of Ipswich, and manufactured by Ransomes and Sims, of Ipswich; an oil cake crusher, price 3*l.* 13s. 6d., invented, improved, and manufactured by E. H. Bentall, of Heybridge; an oil cake crusher, price 2*l.* 16s. 6d., invented, improved, and manufactured by Bernhard Samuelson, of Banbury; a patent root pulper, price 6*l.* 6s., invented, improved, and manufactured by E. H. Bentall, of Heybridge; two patent turnip cutter, price 4*l.* 10s. and 5*l.* 13s. 6d., invented by the late James Gardner, of Banbury, improved and manufactured by Bernhard Samuelson, of Banbury; a turnip cutter, price 5*l.* 2s., as originally invented by the late James Gardner, of Banbury, and manufactured by Ransomes and Sims, of Ipswich; a patent double-action root cutter, price 6*l.* 18s., invented by G. A. Biddell, of Ipswich, improved and manufactured by Ransomes and Sims, of Ipswich; a patent root cutter, price 4*l.* 10s., invented by Edmund Moody, of Maiden Bradley, improved and manufactured by Hugh Carson, of Warminster; a one-horse gear, with intermediate motion, price 13*l.*, invented, improved, and manufactured by Ransomes and Sims, of Ipswich; a patent self-relieving chain harrow, price 4*l.* 15s., invented, improved, and manufactured by John Cartwright, of Shrewsbury; a patent corn screen, price 7*l.*, invented by Robert Boby, of Bury, improved and manufactured by Wallis and Haslam, of Basingstoke; a set of water or feeding pans, price 5*l.* 6s., invented and manufactured by Ransomes and Sims, of Ipswich; a set of iron tubular whippletrees, price 1*l.* 1s., invented, improved, and manufactured by Ransomes and Sims, of Ipswich; a 3-cwt. weighing machine, and a set of weights to weigh 3 cwt., price 3*l.* 15s., invented and manufactured by W. and T. Avery; a 3-cwt. weighing machine, upon the steelyard principle, price 4*l.*, invented, improved, and manufactured by Wm. Chambers Day, of Birmingham; a set of plough harness, price 2*l.*, manufactured by the exhibiter; a roll of galvanized hare and rabbit-proof netting, price 5½d. per running yard, manufactured by T. P. Hawkins, of Birmingham; a bundle of improved Lincolnshire pitch forks, price 5s. 6d. and 5s. each, invented, improved, and manufactured by Spear and Jackson, of Sheffield; a bundle of cast-steel digging forks, prices, 4 prongs 3s. 9d., 5 prongs 4s. 6d. each; a bundle of American-pattern manure forks, price 4s. 9d. each, and a bundle of American-pattern cast-steel hay forks, prices: 4 ft. 1s. 10d., 4 ft. 6 in. 2s., 5 ft. 2s. 1d., 5 ft. 6 in. 2s. 6d., 6 ft. 6 in. 3s., improved and manufactured by W. A. Lyndon, of Birmingham; a hand drag rake, price 11s., manufactured by Francis Stevenson, of Liddington; an iron sack cart or barrow, price 12s. 6d., manufactured by the exhibiter; an engine jack, price 2*l.* 10s., invented and manufactured by W. Gilpin, senr., and Co., Walsall; and a water-cock of cast-iron, price 7s. 6d., invented and manufactured by Gidney and Sons, of Dereham.

BENJAMIN HEEL, of Warwick.

Various sizes of an improved barrel churn, price 2*l.* 7s. to 3*l.* 10s., improved and manufactured by the exhibiter. A curd tub, price 1*l.* 12s., a pair of whey civers, price 2*l.* 10s., a butter civer, price 10s. 6d., and a pair of milking buckets, price 11s. (all English oak), and a box cheese vat, with moveable bottom, price 5s., manufactured by the exhibiter.

HUGHES and SONS, of Great Dover-street, Borough, London, S.E.

Two French runner mill stones, for grinding wheat, price 12*l.* 10s. and 14*l.*, a French bed stone, for grinding wheat, price 12*l.*, a flour dressing machine, price 6*l.*, an iron proving staff, price 3*l.* 3s., a mahogany staff, price 1*l.* 10s., and a set of double and treble iron blocks, with brass sheaves, price 2*l.* 10s., improved and manufactured by the exhibiters.

GEORGE KENT, of 199, High Holborn, London.

Five specimens of (new implement) a Griffiths' patent compound-action churn, price 2*l.* 7s. 6d. to 5*l.*, several specimens of Griffiths' patent compound-action whisk, price 1*l.* 10s. to 4*l.* 5s., invented and patented by E. P. Griffiths, of Camberwell, improved and manufactured by the exhibiter (a silver medal was awarded by the Royal Agricultural Society of England, at the Chester Exhibition, July 21, 1858). Several sizes of Kent's patent rotary knife-cleaning machine, price 3*l.* 3s. to 14*l.* 14s., invented, patented, improved, and manufactured by the exhibiter. A Kent's patent rotary cinder sifter, price 3*l.* 3s., invented, patented, and manufactured by the exhibiter. Two Kent's patent triturating strainers, price 1*l.* 7s. 6d. and 1*l.* 17s. 6d., invented, patented, improved, and manufactured by the exhibiter. A Kent's patent improved washing dolly, price 2*l.* 10s., invented by Mr. Andrews, of the United States, improved, patented, and manufactured by the exhibiter.

THOMAS LYNE, of Malmsbury, Wiltshire.

A patent field stile, price 2*l.*, invented and manufactured by the exhibiter. A set of general purpose patent lever harrows, for light land, price, whippletree and weights included, 5*l.*, a set of patent lever general-purpose harrows, for heavy land, price, weights and whippletrees included, 5*l.* 5s., and a set of lever drag harrows, price 6*l.* 10s., all invented by the exhibiter, and manufactured by John Sealy, of Corston.

PEYTON AND CLARKE, Anchor Forge, Birmingham.

Best tempered cast-steel garden spades, price 3s. to 4s. each; best country shovels, price 2s. 6d. to 3s. 6d. each; best cast-steel grafting tools, price 3s. each; best cast-steel draining tools, price 3s. 3d. each and upwards; best cast-steel gravel shovels, price 2s. 9d. each and upwards; best cast-steel road shovels, price 2s. 6d. each and upwards; best steeled garden spades, price 2s. 3d. each and upwards; best country shovels, price 1s. 9d. each and upwards; casting tools, price 2s. 9d. each; Sutton pattern shovels, price 2s. each and upwards; London treaded spades, price 1s. 6d. each and upwards; London treaded shovels, price 2s. each; Hereford pattern spades, price 2s. 6d. each and upwards; Cheshire socket spades, price 2s. 9d. each and upwards; Cheshire socket shovels, price 2s. 9d. each and upwards; Irish spades, price 2s. 9d. each; Scotch spades, price 2s. 6d. each; Welsh spades, price 2s. 9d. each; Bristol street shovels, price 1s. 6d. and 2s. 6d. each; Cornish miner's shovels, price 1s. 9d. each and upwards; Devonshire and other shovels, of every size, shape, and variety, from 2s. each and upwards; carpenter's Kent axes, price 1s. 9d. and 2s. 6d. each; steel-polled felling axes, price 3s. 3d. each; every kind of axe for all descriptions of trade, from 1s. 6d. each and upwards; common hatchets, price 6d. each and upwards; hedge hooks, or Nottinghamshire bills, price 1s. 6d. each and upwards; Staffordshire-pattern bill hooks, price 1s. 6d. each and upwards; furze-hooks, price 2s. 3d. each and upwards; every other kind of hook for country use, from 1s. 4d. each and upwards; Macadamizing hammers, with handles, price 1s. each; sledge hammers with handles, price 4s. 9d. each; a bundle of pick-axes, price 2s. 6d. each and upwards; English pattern mattocks, price 2s. 6d. each; road picks, price 3s. each; a bundle of hop kerfs, price 2s. 6d. each and upwards; adzes, hoes, &c., &c. at every price, and all improved and manufactured by the exhibiters.

RICHARD HORNSBY AND SONS, of Spittlegate, near Grantham, Lincolnshire.

Several specimens of an improved patent iron plough, price with two wheels £4 7s. 6d. and upwards, skim coulter and drag chain 7s., steel breast 6s. extra; an improved patent colonial swing plough, price £4, skim coulters and drag chain 7s., steel breast 7s. 6d. each; a 12-horse power patent portable double cylinder steam engine, price £360 (received the first prize of £25 at the Royal Agricultural Society of England's meeting at Chester, July, 1858); a 10-horse power patent portable steam engine, price £275; a 9-horse power ditto, price £255 (the Council Medal was awarded to R. H. and Sons' engine at the Great Exhibition, 1851: received the following first prizes of the Royal Agricultural Society of England—viz., £20 at Lincoln, 1854, £10 at Gloucester, 1853, £40 at Lewes, 1852, £50 at Exeter, 1850, and £50 at York, 1848); an 8-horse power ditto, price £235; an 8-horse power horizontal fixture steam engine, price £205 (the prize of £10 was awarded at the Royal Agricultural Society's meeting at Chester, July, 1858), all invented, improved, and manufactured by the exhibiters; a Bourdon's improved steam pressure gauge, price £4 5s., invented and improved by M. Bourdon, of Paris, and manufactured by Messrs. Dewrance and Co., of London; a patent portable combined thrashing, shaking, and dressing machine, for preparing corn for the finishing dressing machine, price £95, if with patent travelling axles £5 extra (received the first price of £20 of the Royal Agricultural Society, at Carlisle, 1855); another size price £110, if with patent travelling axles £5 extra; an improved patent fixture combined thrashing, shaking, and dressing machine, for preparing corn for market, price £120, if with weighing machine £7 10s. extra; a patent corn-dressing and winnowing machine, price £13 10s. (the Council Medal was awarded to this machine at the Great Exhibition, 1851: it has also received the following first prizes from the Royal Agricultural Society of England—viz., £5 at Chester, 1858, £5 at Lincoln, 1854, £5 at Gloucester, 1853, £10 at Lewes, 1852, £10 at Exeter, 1850, £10 at Norwich, 1849, £10 at York, 1848, and £3 at Newcastle, 1846); another size, price £12 (which received the first prize of £5 from the Royal Agricultural Society of England, at its trial of this class of machinery, at Carlisle, 1855, as well as the first prize of £5 at its meeting at Gloucester, 1853), invented, improved, and manufactured by the exhibiters; a portable corn-grinding mill, for steam power, price £39 10s., invented and improved by exhibiters, and manufactured by the exhibiters and Messrs. Bloom and Chalkless; an improved machine for breaking oilcake for beast and sheep, price £5 5s., (received the Council Medal of the Great Exhibition, also the first prize of £5 at the Lewes meeting of the Royal Agricultural Society of England, 1852, £5 at Shrewsbury, 1845, £5 at Southampton, 1844, and £5 at Derby, 1843); a portable circular-saw bench, price £35, and smaller size £15; a drilling machine, for corn, seed, and general purposes, price, complete with manure box, coulters, &c., fitted for general purposes, £42 5s. (received the foilowing first prizes from the Royal Agricultural Society of England—£5 at Salisbury, 1857, £10 at Lincoln, 1854, £10 at Lewes, 1852, £15 at Norwich, 1849, £15 at York, 1848, £15 at Newcastle-upon-Tyne, 1846, £15 at Shrewsbury, 1845, £10 at Derby, 1843, £30 at Bristol, 1842, and £25 at Liverpool, 1841); a patent drill for turnips, mangold wurtzel, and manure, price £29 12s. (received Council Medal at the Great Exhibition, 1851; the first prize of £5 when fitted both as a ridge and flat surface drill, at the Royal Agricultural Society's meeting at Salisbury, 1857, £5 at Lincoln, 1854, £10 at Lewes, 1852, £10 at Exeter, 1850, £10 at Norwich, 1849, and £10 at Shrewsbury, 1845); a 10-row patent corn and seed drill, price £27 (received the Council Medal at the Great Exhibition of 1851, and the following first prizes from the Royal Agricultural Society of England—£10 at Carlisle, 1855, £10 at Lincoln, 1854, £10 at Gloucester, 1853, £10 at Lewes, 1852, £10 at Exeter, 1850); an improved patent fore-carriage steerage, price £4 10s. (received the prize medal of the Royal Agricultural Society of England, at Exeter, 1850); a 12-row patent corn-drill, price £28 10s.; a 13-row patent corn drill, price £30, and a patent small occupation drill, price £19 5s., all invented, improved, and manufactured by the exhibiters, (the latter has received the Royal Agricultural Society's first prize of £2, at Salisbury, 1857, £5 at Carlisle, 1855, and £10 at Lewes, 1852.)

Edward Humphries, of Pershore, Worcestershire.

A portable combined thrashing, shaking, riddling, barley horning, winnowing, and sacking machine, price £93 and upwards, invented, improved, and manufactured by the exhibiter; a 6-horse power portable steam engine, price £200, invented, improved, and manufactured by Clayton, Shuttleworth, and Co., of Lincoln; a portable clover machine, price £35; an improved winnowing or corn-dressing machine, price £12 10s.; a patent riddle for combined machines, price £3, and a pair of cider press screws, price £6, invented, improved, and manufactured by the exhibiter; a six-bar gate, price £1 4s.; and a five-bar gate, price £1 4s., invented, improved, and manufactured by Emanuel Smith, jun., of Pershore.

Charles Powell, of Ticehurst, Hurstgreen, Sussex.

(New implement)—an implement styled the "Multum in Parvo," price £7 7s.; (new implement)—a manure distributor for artificial manures, price £18 18s.; a seed dibbler or planter, price £3 3s.; a bean dibbler or planter, price £3 15s.; a general dibbler for beans, wheat, peas, mangold, &c., price £3 16s.; a general seed dibbler or planter for Lois Weedon husbandry, price £3; and a Sigma hoe, price £1 5s., all invented by "Sigma," and manufactured by the exhibiter,

Manning Prentice, of Stowmarket, Suffolk.

A cereal manure, price £8 10s. per ton; a mangold manure, price £8 per ton; and a patent turnip manure, price £6 10s. per ton, invented, improved, and manufactured by Thomas Prentice and Co., of Stowmarket; a superphosphate of lime, price £6 per ton and upwards; asphalte flooring, price, for ¾ inch, 1s. 6d. per square yard, fuel and sand being provided by employer, all manufactured by Thomas Prentice, of Stowmarket.

(To be concluded in our next.)

THE OLD NORFOLK FARMER AT WARWICK.

Dear Sir,—On proceeding to the ground on Monday morning, I found that the operations had been adjourned to another field separated from the former one by a narrow slip of meadow land. There were only three competitors who had removed their ploughs, &c., namely, Fowler, Smith, and Roby, the others having withdrawn from the course, thereby fully justifying the opinion I expressed last week, that the trials had for the most part proved a failure. The new land was of a medium quality, inclining to clay, but with a mixture of gravel. The subsoil, however, was a very strong clay or brick earth, but the implements did not penetrate so deep as to enter it, except in one instance, which I shall presently refer to.

Fowler's plough was placed between Smith's cultivator and his own, and turned over its four furrows satisfactorily. The rise of the hill-side was tolerably steep, so as to test both the strength of the rope, the power of the engine, and the capability of the plough-frame to retain its position. The curve of the land, which the plough followed, was considerable, which added greatly to the strain on the wire rope, but did not break it. I do not know what quantity of ground was allotted to each implement, but from the rapid manner in which Fowler's plough ascended and went down the hill-side, I should say that fully seven acres per day was the rate at which it performed its work.

Smith's cultivator "smashed" up the ground, at the instigation of its inventor, in fine style; but the fault we referred to last week is fatal to its economic use. I refer to the necessity of passing twice over the ground, which nearly doubles the work, or at least so far lengthens the time of the operation as to make its use very expensive. I question whether, with a ten horse-power engine, more than four acres per day can be properly cultivated. In other respects it did its work well, and passed over ground that no plough could have touched. For instance, there was a clay-pit in the middle of the portion of land selected by him on that account: it had been partly filled up, but had still an incline on all sides of 1 to 3½, or fully 30 per cent. Through this pit the cultivator passed with ease, "smashing" up the clay in grand style, without missing or slurring over any part of it.

Upon reflection the mode of working of Fowler's cultivator, it appears to me is not altogether unsatisfactory. It certainly cuts up the sod completely, at one operation, and so far I consider it has the advantage of Smith's. But on the other hand, it neither "smashes" nor breaks it, nor even turns it over, so that if a shower of rain falls, the grass would instantly strike root again. Besides, being unbroken, or at least, very little broken by the cultivator, the harrows would have great difficulty in pulling it in pieces. These objections I consider as serious, by affecting the utility of the implement.

With respect to Chandler and Oliver's (Roby's) plough, it did not appear to me to be strong or heavy enough for the work, nor was the amount of work performed adequate to the power employed. Its only redeeming feature was that what work it did, was very well done. Owing to its peculiar construction, the engine may be placed in any part of a field, the drums being fixed to the fore-part of the engine, and the wire-rope passed through pullies attached to anchors the same as Smith's.

I am glad to find that the judges have re-considered the character of Smith's machine since last year, and have "highly commended" it. There is no dispute amongst practical men about the claim of Fowler to the prize of £50: no other machine in the field did the work so efficiently or to so large an extent in a given time; but with regard to the actual economy of time and money in its working, you know my opinion on that score, and I need not repeat it. I still consider that the power of steam has yet to be applied to the land, or rather to agriculture, in a much more efficient and economic manner.

To me it is a source of vexation to see so large an amount of money expended upon schemes, which a small amount of common sense and knowledge of agriculture might convince the inventors that they will be useless. Thousands are thus wasted that would be otherwise profitably employed in forwarding really useful experiments, which are thus thrown into the background for want of funds. Such are many of the schemes for the cultivation by steam, which at present is but in an incipient form, and cannot be said to be fairly launched. A short time will convince the public that some more efficient system is required to give to steam-power in agriculture that development it has acquired in other departments of industry.

I had the pleasure of witnessing one most valuable machine worked by steam. I refer to Fowler's draining plough, which appears to me to be a completely successful application of steam power. No landlord ought to be without one for the benefit of his tenants, for certainly its operation would be as advantageous to himself as to them. Mr. Eddington, the engineer, assured me that any proprietor of one of these machines would be able to drain his land four feet deep and sixteen feet apart for 10s. or 12s. per acre exclusive of the tiles. This is a really large economy of labour and money, for the same work could not be done by the spade at less than five or six pounds per acre. Every one was pleased with the working of this plough, and could see at a single glance that it does the work in a most efficient manner. The engine is an eight-horse power, and is specially constructed to stand against the enormous strain occasioned by drawing the tiles into the tubular orifice at the same time that it is made by the mole of the machine.

I went on Wednesday morning to see the operation of the mowers. There were three machines at work, namely, Messrs. Burgess and Key's Allen's American patent, Harwood's of Stowmarket, and Wood's Clayton's patent. The first bore away the prize without any controversy, except amongst the proprietors. It cut the grass as close and as regularly as if it had been shaved with a razor. What rendered it still more the faourite, was the ease with which, owing to the simplicity of its construction, the horses walked off with it, as if they had nothing behind them. Harwood's machine was not equal in working to Burgess and Key's; and it appeared to me that the blade was too long, being 5 feet 6 inches, whilst that of Burgess and Key's was only 4 feet 6 inches. This certainly must have rendered it harder for the horses, who accordingly appeared a good deal distressed with the work. In other respects the grass was cut unequally, some well, other parts left rough. With regard to the third machine, it regularly left a wad three inches high all over the ground, with many tufts much worse. I went over the ground this morning after the field had been cleared, and could tell to an inch where each machine had been worked. This, in fact, is the best time to judge of the work, it being impossible whilst the hay is scattered over the field to form an adequate opinion. In the present case, however, there was no room for doubt as to which was the best machine. At the same time I would recommend Mr. Harwood to shorten his blade from six to twelve inches, and see whether that would not improve the working.

There was one implement which I think ought to have received more attention from the judges than they paid to it. This is Hancock's plough, which has three shares, one before and above the other. The first takes two inches of the sod, and turns it over into the furrow; the second takes two inches more, which it throws over the first; the third takes two to four inches, and completes the work. By thus dividing the six or eight inches into three portions, it becomes broken and pulverized sufficiently to form an excellent seed bed. I examined the work of this plough to-day. It is on a farm of Mr. Dickenson, and is confessedly the worst piece of clay soil in the county. Some other ploughs had worked by the side of Hancock's, and the superior state in which his plough left the land could be seen as soon as you enter the field. Yet the judges took no notice of it, and even would not allow the plough to be left at the head of the work, but ordered it to be taken out of the field, although every other was so allowed to be left. This is not even-handed justice, and if persisted in will bring the Society into discredit.

Yours, &c.,

Warwick, July 16th. AN OLD NORFOLK FARMER.

THE ATTENDANCE AT WARWICK.—The Royal Agricultural Society registered the admission of 1,689 persons, at 2s. 6d. each, to the implement yard only, on Tuesday (yielding £210 17s. 6d.), against 1,251 admitted on the opening day at Chester last year. On Wednesday there was separate entrance to the cattle yard, into which 3,376 persons entered, at 5s. each, paying £844 18s. 6d.; whilst 5,154 persons paid £644 for entrance to the other department, many, of course, paying for both. At Chester, last year, 3,180 persons were registered at the implement yard, and 4,887 at the cattle yard. On Thursday last, 19,902 entered the show-yard, the number on the corresponding day at Chester being 24,790. On Friday the attendance, although a shilling-day, was but 25,446.

THE WARWICK MEETING.—Mr. Moony, a large stockholder in Victoria, has purchased the first prize Hereford bull, class II., of Mr. Naylor, and the first prize Hereford heifer, class V., of Lord Berwick, for shipment to Melbourne.

DEATH OF MR. HUDSON, THE LATE SECRETARY OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—Mr. James Hudson died on the morning of Tuesday, the 28th of June, within one week of his formal dismissal from office. He had, however, been seriously indisposed for a considerable time, and was known of late to have been gradually sinking. He was in the fifty-sixth year of his age. Mr. Hudson succeeded the late Mr. William Shaw, as Secretary of the Royal Agricultural Society, in the year after the opening meeting at Oxford in 1839. He entered upon the duties of this appointment with the highest testimonials in his favour, having previously held for nine years the office of assistant-secretary and librarian to the Royal Society at a salary of three hundred per annum. He withdrew from the Royal Society in November, 1834, having during the year previous received the public thanks of that Society, accompanied by a present of twenty guineas, "for the able manner in which he drew up the report on the adjudication of the Society's medals." He is still well remembered and spoken of by the Fellows as a very efficient officer. It will be seen from this that the Council of the Royal Agricultural Society were thoroughly justified in the selection they made, and for many years their expectations were amply realized. Mr. Hudson quite sustained his character as an efficient officer, and until very lately no man could have been more respected. Indeed the recent proceedings were such as to utterly astound many of his friends, although it was known to some that he had long been in difficulties. An effort, in fact, was made, we are told, a year or two since, to save him; but from something like a positive disinclination on his own part, it was not proceeded with. He leaves a widow and a very large family. Rumour puts the amount of the defalcations at something like two thousand pounds; but we shall prefer awaiting the official declaration of the Council on this point.

MR. SANDAY'S ANNUAL LETTING OF LEICESTER SHEEP AT HOLME PIERREPONT.

An event which has now come to be regarded with great interest in the agricultural year took place at Holme Pierrepont, on Wednesday last—namely, the annual letting of Mr. Sanday's Leicester sheep. There was an exceedingly good attendance of agriculturists, including several of the best farmers and flockmasters of the kingdom, and the proceedings of the day passed off in a most spirited manner. Notwithstanding the annually increasing number of breeders against whose skill and experience Mr. Sanday has to contend, he continues to sustain, in a remarkable manner, the high reputation he has made for himself in that most important branch of agriculture to which he has devoted his attention, and, as we stated last week, he has again carried off a large portion of the prizes awarded to Leicester sheep, at the recent show of the Royal Agricultural Society, at Warwick. This circumstance, together with the interest always felt in Mr. Sanday's annual shows, which are exceedingly agreeable reunions, drew around that gentleman on Wednesday a larger company than on any previous occasion. The muster occupied most of the morning, but the bulk of the visitors arrived about noon; and soon after one o'clock, the guests were invited to Mr. Sanday's hospitable board, that gentleman giving them individually a most hearty and cordial welcome. The luncheon—an excellent cold collation, with abundance of wine,—was well served up, and the company fully evinced their appreciation of it.

Amongst the company present we observed the following:—Mr. Marshall, Cotgrave; Mr. Thunder, Meath, Ireland; Mr. Turner, Barton, near Exeter; J. Mann, Esq., Huntingdon; Mr. Hewitt, Dodford, Northamptonshire; Mr. Bosworth, Dishley; R. Hortin, Esq., Sherbourn, Warwickshire; Mr. Cobb, steward to Sir Chas. Mordaunt; Level Cowley, Esq., Rugby; Mr. Shaw, Stemberry Hill, Northampton; John Wedge, Esq., Fernhill, Northampton; James Singleton, Esq., Parkington; John Borton, Esq., Barton-le-Street, near Malton; C. Clarke, Esq., Hilltop, near Lincoln; Charles Clarke, Esq., Scopwick; Messrs. Stater, Carlton, near Lincoln; Mr. Sellers, Thorpe Bassitt, Malton; Mr. James Somerville, Steward to Col. Ling, Thorpe Hall, Tamworth; Mr. Clarke, Lincoln; John F. Johnson, Esq., Enderby, Leicester; Mr. Mann Tremain, Cornwall; Mr. Owen, Blessington, Ireland; Mr. Hurlstone, Heathcote Farm, Warwick; Mr. Torr, Riby, Lincolnshire.

After the repast, W. Torr, Esq., of Riby, Lincolnshire, proposed in highly complimentary terms the health of their worthy host, whom he said he regarded as the most successful breeder of Leicester sheep in the kingdom. Mr. Sanday, in returning thanks, expressed his sense of the honour done him by Mr. Torr and the gentlemen present, and his desire to retain the good opinion they were pleased to entertain of him. He assured them that it afforded him the highest gratification to find himself surrounded by so many eminent agriculturists from various parts of the country, and he trusted he should have the pleasure of meeting them all again next year, and that he should be able to produce a show of sheep alike worthy of their approbation, and of the character they had been kind enough to give him as a breeder.

The health of Mrs. Sanday was next proposed, and drunk with enthusiasm, Mr. Sanday returning thanks in a few approriate remarks.

At the conclusion of the proceedings at the luncheon, the company proceeded to the show yard, where a ring for the exhibition of the animals was prepared, and the auctioneer, Mr. Strafford, of London, having assumed the hammer, the business of the day commenced with the letting of the shearlings, which were offered in the order of the catalogue. Of these 26 lots were disposed of, the highest price obtained being 90 guineas, and the average price £34 6s. This latter was a considerable advance in the average prices realised last year, which was £22 12s. 6d. The two shears were next brought to the hammer, consisting of 10 lots, of which the best realised 61 guineas, and the average price was £30. Five lots of these shears were disposed of, the highest price being 51 guineas, and the average £30 9s. A four-shear ram made 25 guineas, and two five shears realised respectfully 10 guineas and 17 guineas.

Both before and after the sale the company availed themselves of the opportunity of inspecting the excellent arrangements of Mr. Sanday's farm, and in examining his short horns, of which he possessed some fine specimens.

The following is a list of the prices:—

SHEARLINGS.

No. 1.—By M., dam by G., Mr. Smith, Ireland.
No. 2.—By W. X., dam by M. U., Mr. Smith, Ireland.
No. 3.—By G. N., dam by L. N., Mr. Smith, Ireland.
No. 4.—By G. N., dam by L. N., Mr. Smith, Ireland.
No. 5.—By M., dam by A. Y., Mr. Richard Hewitt, 15 gs.
No. 6.—By M., dam by L. N., Mr. Abrahams, 30 gs.
No. 9.—By M., dan by W. H., Sir C. Mordaunt, 10 gs.
No. 10.—By M., dam by., G. W., Mr. Marshall, 10 gs.
No. 11.—By M., dam by G., Lord Carrington, 21 gs.
No. 12.—By M., dam by G., Col. Pennant, 38 gs.
No. 13.—By G. N., dam by M. U., Mr. Wright, 18 gs.
No. 14.—By W. X., dam by No. 3, Mr. Wedge, 18 gs.
No. 15.—By W. X., dam by C. S., Mr. Wedge, 30 gs.
No. 16.—By G. N., dam by C. S., Col. Pennant, 47 gs.
No. 17.—By G. N., dam by W., Mr. Clarke, 26 gs.
No. 18.—By G. N., dam by C. S., Mr. Hall, 24 gs.
No. 19.—By G. M., dam by L., Sir C. Mordaunt, 16 gs.
No. 20.—By G. N., dam by D. Y., Mr. Hall, 50 gs.
No. 21.—By G. N. dam by C. S., Mr. Hall, 30 gs.
No. 22.—By W. X., dam by Mr. Hewitt, Mr. Hall, 28 gs.
No. 23.—By W. X., dam by M. U., Mr. Wedge, 28 gs.
No. 24.—By G. N., dam by A. Y., Mr. Owen, 40 gs.
No. 25.—By W. X., dam by G. Mead and Gard, 47 gs.
No. 26.—By G. N., dam by W., Mr. Torr, 70 gs.
No. 27.—By G. N., dam by A. Y., Mr. Thunder. 90 gs.
No. 28.—By G. N., dam by No. 3, Mr. Shaw, 35 gs.

TWO SHEARS.

No. 1.—By G. N., dam by Y. Mr. Hall, 10 gs.
No. 2.—By C. S., dam bred by Mr. Buckley, Mr. Cowley, 20 gs.
No. 6.—By C. S., dam by G. W., Mr. Hurlstone, 22 gs.
No. 7.—By C. S. dam by D. N., Mr. Hall, 10 gs.

No. 11.—By G. N., dam by D. U., Mr. Shaw, 50 gs.
No. 12.—By G. N., dam by W. H., Mr. Biddle, 24 gs.
No. 14.—By G. N., dam by L. S., Mr. Turner, 21 gs.
No. 17.—By C. S. dam by M. U., Mr. Thomas Simpkin, 26 gs.
No. 18.—By G. N. dam by L , Mr. Hall, 42 gs.
*No. 19.—By G. N., dam bred by Mr. Buckley, Mr. Borton, 61 gs.

THREE SHEARS.

No. 2.—By M. U., dam by Y., Col. Inge, 10 gs.
No. 5.—By M. U., dam by D. H., Mr. Wood, 22 gs.
No. 6.—By C. S., dam by No. 3, Mr. Simpkin, 12 gs.
No. 7.—By G., dam by L., Messrs. Slater and Clarke, 50 gs.
No. 8.—By M. U., dam by Y. H., Mr. Longfield, 51 gs.

FOUR SHEARS.

No. 5.—By M. U., dam by Y., Mr. Stamper, 25 gs.

FIVE SHEARS.

No. 1.—By L. S. dam by No. 3, Mr. Borton, 10 gs.
No. 3.—By W. H., dam bred by Mr. Buckley, Mr. Turner, 17 gs.

* No. 19 to be let after the 10th of October.—*Notts. Guardian.*

WEIGHTS AND MEASURES.

A Bill prepared and brought into Parliament by Mr. John Locke, Mr. Hutt, and Mr. Buxton, to amend the Act of the Fifth and Sixth Years of King William the Fourth, Chapter Sixty-three, relating to Weights and Measures.

Whereas it is expedient that the Act passed in the session holden in the fifth and sixth years of the reign of King William the Fourth, chapter sixty-three, intituled "An Act to repeal an Act of the fourth and fifth years of his present Majesty, relating to weights and measures, and to make other provisions instead thereof," should be amended: Be it therefore enacted by the Queen's most excellent majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

I. No person shall sell or offer or expose for sale, or cause to be sold or offered or exposed for sale, any wheat, barley oats, rye, beans, peas, or other similar corn, grain, or pulse, by any local or customary weight or measure, or otherwise than by the imperial measure of capacity, or by the sack of four imperial bushels, or by the quarter of eight imperial bushels; but nothing herein contained shall prevent the selling or offering or exposing for sale any wheat, barley, oats, rye, beans, peas, or other corn, grain, or pulse by the imperial measure, or by the sack of four imperial bushels, or the quarter of eight imperial bushels, with a guarantee of the weight thereof at the time of such sale or offering or exposing for sale; and all bargains, sales, and contracts made or entered into for the sale of any such wheat, barley, oats, rye, beans, peas, corn, grain, or pulse, otherwise than as aforesaid, shall be null and void.

II. No model or copy of any of the imperial standards of weights shall be deemed legal, or used for the purpose of enforcing the provisions of this Act or the Act passed in the session holden in the fifth and sixth years of the reign of King William the Fourth, chapter sixty-three, unless the same have been compared or reverified by the Comptroller-General or some other officer of the Exchequer duly authorized, within *three* years before the time when it is so used; and no model or copy of any of the imperial standards of measures shall be deemed legal or used for the purposes aforesaid unless it have been compared or reverified as aforesaid within *six* years before the time when it is so used.

III. No person shall wilfully or knowingly make or sell, or cause to be made or sold, any false or unjust beam, scale, or balance, or any light or unjust weight or measure; and every person who shall commit any such offence shall upon being convicted thereof forfeit and pay any sum not, exceeding *ten pounds* as shall be adjudged by the justice, sheriff, or magistrate before whom any such conviction shall take place.

IV. It shall be lawful for every inspector of weights and measures, or other person or persons duly appointed to inspect weights and measures, at all reasonable times to inspect all beams, scales, and balances, and weights and measures, in the possession of any person selling, offering, or exposing for sale any goods on any open ground, or in any public street, lane, thoroughfare, or other open place; and if upon such inspection or examination any such beams, scales, and balances, or weights and measures, shall be found light or unjust, or otherwise contrary to the provisions of this Act or the herein-before recited Act, the same shall be liable to be seized and forfeited, and the person or persons using or having in his or her possession any such false or unjust beams, scales or balances, or light or unjust weights or measures, shall be liable to any penalty not exceeding *five pounds.*

V. It shall be lawful for the owners or managers of any public market where goods are exposed or kept for sale, and they are hereby required, to provide proper beams, scales, and balances, and weights and measures, or other machines, for the purpose of weighing or measuring all goods sold, offered, or exposed for sale in any such market, and to deposit the same at the office of the clerk or toll collector of such market, or some other convenient place, and to have the accuracy of all such beams, scales, and balances, and weights and measures, or other machines, tested at least *twice* in every year by the inspector of weights and measures of and for the county or district where any such market is situate; and all expenses attending the purchase thereof, and for adjusting and testing the same, shall be paid out of the monies collected for tolls in such market; and such clerk or toll collector shall at all reasonable times, whenever called upon so to do, weigh, measure, or examine all goods brought to him for that purpose, and which shall have been sold, offered, or exposed for sale in any such market, upon payment of such reasonable sum or sums of money as shall from time to time be decided upon by the said owners or managers.

VI. It shall be lawful for every clerk or toll collector of any public market, and they are hereby required, at all reasonable times, to weigh, measure, or examine all goods sold, offered, or exposed for sale in any such market; and if upon such weighing, measuring, or examination any such goods shall be found deficient in weight or measure, or otherwise contrary to the provisions of this Act or the herein-before recited Act, every such clerk or toll collector is hereby authorized and required to summon the offender or offenders before any justice, sheriff, or magistrate having jurisdiction in the county or district where any such market is situate; and every such justice, sheriff, or magistrate shall, upon proof thereof, convict the offender or offenders in the respective penalties by this Act or the said recited Act imposed, and shall from time to time award to any such clerk or toll collector such reasonable remuneration (to be paid out of the said penalties) as to him shall seem fit.

VII. For every offence against or disobedience to the provisions of this Act or the herein-before recited Act for which no special penalty is provided, the offender shall, at the discretion of the justice, sheriff, or magistrate before whom any such conviction shall take place, be liable to any penalty not exceeding *five pounds,* as shall be adjudged by such justice, sheriff, or magistrate.

VIII. This Act shall be constructed and together with the said recited Act of the fifth and sixth years of the reign of King William the Fourth, so far as the provisions of the same are consistent herewith: Provided always, that nothing herein contained shall be construed or taken to apply to any action or proceeding now pending or which may be commenced previous to this Act coming into operation.

IX. This Act shall not extend to Ireland.

CALENDAR OF AGRICULTURE.

This is the general harvest month in Britain, except in the extreme northern parts, where it is protracted into next month. Cut grain crops fully ten days before dead ripeness: the straw will be more juicy, and the flour will be whiter and more doughy. Wheat is cut by hand sickle, placed in shocks of twelve sheaves, and built in ricks. Oats and barley are most generally mown by scythe, laid into swathes for several days, turned over to be dried, tied into sheaves, and placed in shocks. These grains are carried loose as hay, but sheaves suit better the thrashing machine. Peas are cut by hand, and rolled into heaps to be dried. In fine weather every exertion and pains must be used in getting the crops cut and carried. Hire plenty of hands, and allow sufficient beer to the poor labourers. A sparing parsimony in harvest is the worst-judged economy that can be practised.

Clear thoroughly, by hoeing and scuffling, all drilled and green crops; earth-up potatoes; and pull by hand the tall weeds that may afterwards arise.

Lay lime, dung, and composts on wheat fallows. Harrow the lime immediately, and cover the dung by ploughing—both operations going on together, or following each other as closely as possible. Continue draining, the folding of sheep, and the soiling of cattle, as before directed.

Keep the lambs always in forward condition by placing the young animals on the best pastures. The drafted flock of last year will now be ready for the butcher; and ewes may be put to the ram for early lambs.

Sow, on well-prepared ground, and in sheltered situations, the seeds of drum-head cabbages, kohl-rabi, savoys, and broccoli, for plants to be used next spring. Sow rye and winter vetches for early spring use. Use dung for the vetches, or what may be better in many situations, summer-fallow the land, using dung at the same time, thus adopting every possible known means to secure so valuable a crop in the spring.

Burn ashes, and prepare constantly all kinds of artificial manures for the drop drill. Gather dung of all kinds; earths for composts; and vegetables for the manure pits. No person will ever do much in farming who does not apply manures with a constant lavish and an unsparing hand.

CALENDAR OF GARDENING.

Sow the main crops of turnips in drills, with an inch or two of good manure, and a pint of bone-dust to each barrow, three inches directly below the intended row: these drills ought to be struck in ridges formed by taking a little of the earth from the spaces between them. Choose an open plot of ground outside the garden, for turnips rarely prosper within it. Hoe and thin the plants as they grow, till at last they stand about nine inches apart, and two feet from row to row.

Sow cabbages for spring by the middle of the month. Experience may direct an earlier sowing, even in July.

Sow winter prickly spinach and endive in the second or third week.

Sow the hardier sorts of lettuces, carrots, and onions for spring, and all the other vegetables omitted in July, excepting the legumes.

Plant cauliflowers under glasses or in frames.

Apples, pears, or espaliers are pruned in the spring and summer growths, except the foremost leading shoot, to cause the swelling of fruitful buds at the base.

Make fresh plantations of strawberries.

Re-pot and dress auricula plants, and pot-off seedlings. In moist weather, during the latter months, transplant or introduce all kinds of evergreens.

PROPERTIES OF DEW.—The chief facts to be accounted for are these: 1st, Dew (as distinguished from small rain or the moisture produced by visible fog) is never deposited except on a surface colder than the air. 2nd, It is never deposited in cloudy weather; and so strict is its connection with a clear sky, that its deposition is immediately suspended whenever any considerable cloud passes the zenith of the place of observation. 3rd, It is never copiously deposited in a place screened or sheltered from a clear view of the sky, even if the screen be of very thin material, such as muslin or paper suspended over it. 4th, It is most copiously deposited on all such bodies as are good radiants and bad conductors of heat, such as grass, paper, glass, wool, &c.; but little or not at all on bad radiants, such as polished metals, which are also good conductors. And, lastly, it is never deposited if there be much wind. All these circumstances, as Dr. Wells has shown, point to the escape of heat from the bodies exposed by radiation out into space, or into the upper and colder regions of the air, faster than it can be restored by counter-radiation or by conduction from the contact with the warm air or with solid substances—wind acting in this respect with great efficacy, by continually renewing the air in contact. Hoar-frost differs only from dew by being frozen in the moment of deposition, and therefore accreting in crystalline spiculæ.—*Encyclopædia Britannica, New Edition.*

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JULY.

The unusually high temperature experienced during nearly the whole of the month has ripened the crops with astonishing rapidity; but we regret to find that the heavy thunder-storms experienced on several occasions have been productive of considerable damage to the wheats, which, in many parts of England, have been extensively laid; so much so, indeed, that a great additional expense has to be incurred in harvest work, arising from the comparatively tedious process of cutting crops matted together. It will have been observed that, during the last two months, the wheats, with only few exceptions, have exhibited a most luxuriant appearance, and that they have grown too fast to withstand deluging rains—such as have fallen within the last few weeks. The extent of the damage thus sustained cannot yet be accurately ascertained; but, no doubt, a large portion of the aggregate yield has suffered to some extent; hence, its market value is reduced several shillings per quarter. The few samples that have made their appearance in the different markets have shown signs of a want of condition—in some instances, they have proved thin and light; but our impression is, that, in the event of a dry atmosphere during the remaining portion of the season, future samples will show a different result, notwithstanding that numerous reports of rust, mildew, &c., have reached us from most of our leading counties. We believe, in point of fact, that an immense quantity of wheat has been grown this year—certainly considerably in excess of 1858; but, of course, we have reason to believe that there is considerable unevenness in the weight and quality, especially in those districts in which the greatest damage has been sustained by the late heavy rains. The growth of barley is turning out somewhat thin and steely—a few parcels of the primest crop having been sold in Mark-lane as low as 26s. per qr.; but, on the whole, we think that the actual yield is by no means a deficient one. Oats are turning out remarkably well, and the produce of both beans and peas is somewhat in excess of many previous estimates. Taking the crops collectively, we may, we think, safely assume that, as to quantity, they are fully up to most seasons, and that, in a general sense, there is not much room for complaint. The growth of straw must not be omitted in this report. Everywhere, it is wonderfully abundant; consequently, prices may be expected to rule low for several months. We now come to the consideration of the hay crop. Within a circle of, say, fifty miles round the metropolis, nearly double the quantity of hay has been secured compared with 1858. The crop in 1857 was the largest ever grown in this country: and, this year, it is nearly, or quite, equal to that quantity. The supply in other portions of the country has turned out a very large one, and it has been chiefly secured in the best possible condition. For the stock farmers, these are most important considerations, since they have now abundant supplies of both hay and straw to meet their wants during a period when great scarcity is frequently complained of, and during which prices too often rule very high.

The return to a state of peace in Italy, and the continued influx of rather large supplies of foreign produce, added to the large return of this season's crops in England, have had a most depressing influence upon the demand for all kinds of wheat. Up to about the 19th of the month, prices rapidly gave way—no disposition was shown on the part of the millers to operate—and great difficulty was experienced in effecting sales, even at the reduced currency. In the last fortnight, however, the trade somewhat recovered from the extreme depression, and prices advanced from 1s. to 2s. per quarter, but the advance was paid with much reluctance by the dealers. Spring corn has commanded very little attention, on lower terms, even though the supplies brought forward have been only moderate. In reference to the stocks of produce of last year's growth now in the hands of the farmers, we may observe that those of wheat are unquestionably large—quite as large, indeed, as at the corresponding period last year; but those of barley, oats, beans, and peas are trifling in the extreme. If, therefore, the new crop of wheat turns out as large as we anticipate, there is hardly room for any important advance in the quotations, more especially as the grain trade is now set free in the westward, so far as Austrian grain-laden ships are concerned.

Very conflicting reports have been current in reference to the potato crop. In some counties it is very badly reported, in others that rot is general. From what we have lately seen of it, we believe that a portion of the growth has been lost; but at the same time, when we take into account the immense extent of land cultivated with potatoes this year, we think that the deficiency will not have so much influence upon prices as has been anticipated, more especially as both wheat and rice are likely to be selling at very moderate quotations. The crops of nearly all kinds of fruit have turned out very limited this season. In different quarters some descriptions have proved a failure, and there is scarcely any supply for winter consumption.

The heavy rains have been productive of great benefit to the swedes, mangolds, and turnips, which at one time were suffering severely from the want of moisture, and it is to be hoped they have so far recovered as to yield a full average supply.

Notwithstanding that nearly 100,000 bales of colonial and foreign wool will be brought to the hammer at the public sales now in progress, the wool trade, under the influence of an improved continental demand, and of a low range in the value of money, has shown more firmness, and prices have advanced 1d. to 1½d. per lb. A large quantity of English wool has found buyers at 1d. per lb. more money, although the quantities on offer have considerably increased.

The bine having shown signs of great improvement, the hop trade has become heavy at drooping currencies, and the duty has been done as high as £250,000. The supply of yearling and old hops in the hands of the factors is still very large.

In Ireland and Scotland the crops have made good progress towards maturity. No serious complaints have come to hand in reference to their probable yield, but it is stated that potatoes are much diseased in some quarters. The grain trade generally has continued in a very inactive state, on easier terms.

There has been a fall in the value of beasts throughout the kingdom, and some inactivity has prevailed in the demand for other kinds of stock. On the whole, however, prices have been fairly supported.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Notwithstanding that the supply of pasture food has been tolerably abundant, and that comparative inactivity has prevailed in the trade generally, the supplies of fat stock on offer in the Metropolitan Cattle Market, since we last wrote, have been seasonably large. In their general quality there has been a decided improvement, and, for the most part, both beasts and sheep have died well for the butchers. The commencement of the northern district arrivals shows that we may expect some very fine bullocks from that quarter during the present season; and the near-conclusion of the supply from Norfolk has been marked by steady receipts, both as to number and quality; indeed, a better "eastern" season has seldom been known than the past. The present value of beasts in most of our markets leaves a positive loss to those who purchased store animals at high quotations. Sheep, lambs, calves, and very prime pigs, however, are selling at what may be termed fair—possibly, remunerative—prices. The present state of trade will, we are of opinion, continue for several months. Supplies may be large; but we doubt much whether they will be in excess of the consumptive demand, which fairly promises to be extensive, now that money is cheap, that we have peace on the Continent, and that trade and commerce generally are in a flourishing state. Some remarkably fine heifers have been received during the month from Ireland. They have consisted chiefly of short-horns, and, in many instances, realized as much as £23 10s. each. The arrivals of stock from the sister island are now beginning to exercise considerable influence upon the value of meat in the London market.

As regards the importations from abroad, we may observe that those of sheep have been on an extensive scale, and that those of other kinds of stock have been tolerably good. The annexed figures shew the arrivals into London:—

Beasts	2,324	head.
Sheep	22,633	,,
Lambs	2,657	,,
Calves	2,361	,,
Pigs	872	,,
Total	30,847	,,
Same time in 1858	31,192	head.
,, 1857	26,958	,,
,, 1856	30,537	,,
,, 1855	22,680	,,
,, 1854	22,242	,,
,, 1853	38,795	,,

The total supplies of stock, including those given above, exhibited in the London market, have been as follows:—

Beasts	19,600	head.
Cows	476	,,
Sheep and lambs	166,032	,,
Calves	3,609	,,
Pigs	2,480	,,

COMPARISON OF SUPPLIES.

July.	Beasts.	Cows.	Sheep & Lambs.	Calves.	Pigs.
1858....	20,468	547	154,932	4,262	3,290
1857....	19,558	530	142,280	3,830	2,395
1856....	18,589	500	135,650	3,407	3,225
1855....	16,702	535	149,470	2,757	4,000

The month's arrivals from Lincolnshire, Leicestershire, and Northamptonshire have amounted to 7,000 short-horns and crosses; from Norfolk, Suffolk, Essex, and Cambridgeshire, 3,600 Scots, shorthorns, and crosses; from other parts of England, 4,000 of various breeds; from Scotland, 930 Scots and crosses; and from Ireland, 490 oxen and heifers.

Owing to the prevailing hot weather very little meat has been on offer in Newgate and Leadenhall markets; hence, the consumption of London has been almost wholly met by the live trade. Beasts have sold at from 2s. 10d. to 4s. 6d.; sheep, 3s. 2d. to 5s.; lambs, 4s. 8d. to 6s.; calves, 3s. 8d. to 4s. 8d.; and pigs, 3s. 2d. to 4s. 8d. per 8 lb. to sink the offal.

On the whole, the health of the stock in our leading grazing districts has continued good; very few losses of importance have resulted from disease, and there is now an abundance of food even on what may be termed poor land.

Advices from Holland are to the effect that the general condition of the stock is improving. The arrivals into London from that country have materially improved in condition, now that the customs' regulations have become more severe; and it is understood that future shipments will be on a somewhat liberal scale. From Germany large numbers of sheep—wholly merinos—continue to reach us; but they still exhibit a scarcity of flesh, even compared with their comparatively small frames. These sheep can hardly pay the graziers, when it is considered that they are worth only from 21s. to 25s. each in our markets, and that meat is a dear commodity in most parts of Germany. Yet they come in large numbers, but without, of course, adding much to the available supply of food in this country.

CUMBERLAND.

Since the year 1826 there has been no season to approach the present one for a long-continued and severe drought. Since the middle of April there has been no rain of any consequence even to damp the parched earth, only a slight shower now and then, not sufficient to penetrate to any depth, and had little or no effect on vegetation. There has been no appearance of a change of weather until to-day. After a great deal of thunder and lightning during the night, it began to rain early in the morning, and has now continued several hours to rain heavily, which will help to cool the earth and stimulate vegetation. The wheat-crop is the only one that has any pretensions to being good. Not so bulky in straw as in former years, it is, notwithstanding, a fair crop, and will probably yield well, and the grain be of good quality and early ripe. Barley, where very early sown, is a tolerably fair crop; but where late got in, will be extremely deficient. Oats are an exceedingly short crop, very deficient in straw, and are ripening too fast, and will be very light in the grain. There are many fields too short to shear, and so thin that little more than the seed will be produced. There was never a worse prospect for green crops. Mangel-wurzel is a total failure, having almost entirely missed; and where any (with very rare exceptions) have come, there is only here and there a plant, which will be but a poor apology for a crop. Little better can be said for swede turnips, as the weather was too dry to allow the seed to vegetate; and when they did come up, after some of the slight showers, they were immediately eaten up by the fly. Mangel, too, when it vegetated and made its appearance above-ground, raised the hopes of the farmer, which were doomed to be disappointed, as it no sooner showed itself than it was immediately eaten off by a species of worm. Common turnips, where got in after some of the partial showers, brairded pretty well; but the continued drought has considerably checked their growth, and the fly has committed ravages on them also, but not to the extent as upon the swede. The hay crop is necessarily very deficient, especially some old grass land or meadow, and where resting upon a clay subsoil it is generally worst. Sown grasses, where not much eaten during winter and on good loamy soil, have turned off a pretty fair crop; but in general the crop is a very poor one. The pastures are so bare and burned brown that it appears wonderful how cattle or stock of any kind can live upon them, and, although doing badly, yet they appear better than could be expected on looking at the pastures; but neither cattle nor sheep can get fat, and the want of keep causes the markets to be glutted with half-fat animals, which cannot find customers, and it is difficult to see how either the summer or succeeding winter is to be got over, from the scarcity of fodder and failure of the green crop. The excessive drought has all along been accompanied with a comparatively low temperature with a long continuance of east wind, which has added much to the effect of the long-continued dry weather, Not only grass and other crops, but even thorn hedges, in some situations, have been obliged to yield to its intensity, and the leaves become drooping and shrivelled. Wheat has receded in price until it is now almost as low as before the rise at the commencement of the war. Barley, though relatively better in price than wheat, is still low as compared with oats, which command the best price, in proportion to other kinds of grain, and the present appearance of the oat crop would seem to forebode a continued high range of prices for oats. There is much reason to fear that grass-seeds sown with the wheat will have suffered (if much of it is not destroyed) for want of moisture to give it root-hold. Potatoes are complained of, for being small and scabbed, and the stems of some are drooping and withering, as if about ripe. Wool is bringing a good price, and will, in some measure, assist in making up for the loss by sheep not getting fat. Beef and mutton maintain their price pretty well, but the market is much deranged by the glut caused by stock being taken to market for want of keep.—*July* 19.

ESSEX, NEAR CHELMSFORD.

Since our last report the effects of atmospheric disturbance upon the crops has been very great. The exceedingly high temperature that prevailed from the 10th to the 20th forced them on to rapid maturity, and harvest commenced to a limited extent on the 18th. On the 21st heavy rain with thunder commenced, which has intervened more or less to the present time, and much retarded harvest operations. The crops are consequently much beaten down, the barley especially, and in some localities the hail that accompanied the thunder-storms has literally thrashed some of the crops. Mildew has increased to some extent, and altogether the fine appearance previously reported has considerably diminished. A full average crop of wheat, barley, and oats may be, however, calculated upon, but the quality (especially of barley) will suffer considerable deterioration; and if the weather should continue showery next week the lodged portion will undoubtedly, as in last season, become sprouted. Harvest will have pretty generally begun in the ensuing week, but the extra labour requisite to house the crops will not readily be found. Turnips and mangel-wurzel requiring the hoe have already received considerable injury from the delay, the fine showers, however, compensating by the extraordinary growth that has followed them. Potatoes become daily more and more diseased, and should the tubers unfortunately suffer with the haulms, the crop will inevitably be greatly reduced in value. Feed will now be restored, the pastures already resuming their healthy green appearance. Notwithstanding the apparent forwardness of the crops, harvest will not become general before the middle of the ensuing week. Those fields of wheat already begun have proved that the grain is not so forward as was anticipated, and during the last few days scarcely any progress in ripening has taken place.—July 23.

HEREFORDSHIRE.

We were visited on Wednesday and Thursday last by very severe thunder-storms, which did much damage. The swede turnips in some fields are swept away, and the wheat is, in places, as though it had been rolled. Such was the deluge of rain that fell on Wednesday that a wheelbarrow filled with stones was carried by the flood for some distance along the street. For some days before the storm the heat had been intense, the grass was burnt up, and all vegetation seemed at a standstill; but since the rain all nature appears refreshed. Harvesting has commenced, and if the weather becomes settled will shortly be general. We fear, owing to the absence of showers, and the extreme heat, the wheat will not be very plump, and the yield of that which is laid we must expect to be light. Potatoes continue very good, and there is no doubt of the crops being heavy. Barley (where it is not laid), oats, beans, and peas are spoken well of, and some of the former has been cut. At Ross fair, yesterday, things were rather on the decline, but wool fetched a good price, say 17d. to 18d. per lb. A great many horses were on offer, and such as were superior readily found purchasers, at high figures. There was a large business done in pigs, which are rather on the decline. At Messrs. Bradstock and Wigmore's annual ram sale, on the 13th instant, the prices averaged from £6 6s. to 30 per head, the whole being sold.—*July* 22.

HEREFORDSHIRE.

(FROM ANOTHER CORRESPONDENT.)

The extreme heat that we have experienced during the past seventeen days, unaccompanied by any moisture, has so forced all kinds of our corn crops, that we find ourselves busily engaged in corn harvest before the hay has all been secured; the latter has, up to the present time, been put together in first-rate condition, which will, in some measure, compensate for the lightness of the swathe. In several parts of the county reaping has commenced, and will be very general on Monday next (weather permitting). Several field of peas are secured and some barley cut. Our wheat crop is about an average—certainly much lighter than the last two years—and this, with a very great decrease in the acreage planted, will render the supply from this county much less than for several years past; for, although in the gazetted returns of corn sold we appear not to grow a tithe of the quantity consumed in our own county, yet weekly there are many thousand bushels sent per rail and canal to different parts of the kingdom, so much so, that it frequently happens that we have great difficulty in obtaining trucks, such is the fallacious system under which our tithe averages are regulated. Our beans and peas are clean and well corned, but premature ripeness will, we think, render the corn small; the barley crops are generally good. Our turnips and swedes have been greatly injured by the black caterpillar, and were suffering from drought until yesterday, when we were visited by a violent thunder-storm, and to-day we have had a few genial showers, a most desirable change, both for the roots and pastures. All kinds of stock met a slow sale at our Ross fair, yesterday, owing to the shortness of keep.—*July* 21.

SOUTH SHROPSHIRE.

The heavy thunder storm of yesterday has laid all the heavy and even moderate crops of grain of all descriptions, thereby increasing the expense of cutting, and decreasing their value to a serious extent. Even with fine weather for the harvest, scarcely an average crop of wheat can now be reckoned upon. Some early-sown crops of barley and oats will be ready for cutting next week; in fact, fields of winter oats have already fallen under the scythe. But little or no wheat will be ripe before the 1st of August. The winter beans are a very heavy crop, and will be ready to begin cutting in about a week. Hay making is nearly completed, and although the crops were not heavy the quality is excellent; seldom indeed have we had a more favourable season for harvesting it. The dry forcing weather has produced a great effect upon the pastures, which are short, and burnt in some places. Since the 28th of June no rain of any consequence has fallen till yesterday. The crops of potatoes are promising, with few symptoms of disease at present. There is a prospect of fair crops of mangolds and swedes, though the latter in certain localities have been attacked with the black caterpillar, and some damage sustained. An abundant supply of beef and mutton in the market has naturally lowered the price of these articles; and summer grazing, so far, has not been a very remunerative business.—*July 21st.*

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ATHERSTONE FAIR.—There was very little business done; the stock was very small, and so was the number of purchasers. Beef and mutton sold at about 7d. per lb.

BEDALE FORTNIGHTLY FAIR.—We had a small supply, especially lean stock, owing probably to Topcliffe Fair being held the previous day. Sales were very slow, and holding stock rather lower. Beef, 6s. 6d. to 7s. 6d. per stone; mutton, 6d. to 6½d. per lb.

BRIDGNORTH FAIR.—The show of cattle and sheep here was very much smaller than expected, and business sales very dull. Fat beasts for the knife went at 6½d. to 6¾d. per lb. Sheep sold from 7¼d. to 7½d. per lb. Cows and calves, 8*l*. 10s. to 15*l*. Pigs from 5*d*. to 5½d. per lb. In the horse fair there were a few backs and some agricultural horses, but little or no business done. In the wool trade prices fully maintained 17½d. to 18d. per lb., and in request at the latter sum.

CAITHNESS GEORGEMAS FAIR.—Nearly three-fourths of the whole stock of cattle and about half the sheep shown were driven off unsold. Of cattle there might be about 500 head on the ground, chiefly two-year-old crosses and stirks. There were very few black Highland cattle, and scarcely any milch cows. The fall on the best descriptions of stock, as well as on the more inferior, would be nearly 15 per cent. from the prices prevailing last year. The highest price obtained on the market for two-year-olds was 15*l.*, against 18*l.* for the same description of stock last year. Of sheep there were reckoned to be on the ground about 7,000 head, mostly cross-hoggs. Among them were a great many shots—the top being shipped during the season; but upon the whole the quality of the sheep might be said to be about equal to most past seasons. From the absence of dealers, however, and a want of sufficient competition, holders, in order to effect sales, had to submit to a reduction of 3s. a-head upon last year's prices. The average price of cross hoggs might be put down at 30s. each, and lambs at 17s. The Lochend and Castlehill stock topped the market. Mr. Purvis, jun., sold the Lochend hoggs at 36s., and the Castlehill hoggs at 35s. each. The horse market was exceedingly dull, notwithstanding that a number of fine young animals were shown. Except a few aged cart-horses, which were picked up at various prices of from 5*l.* to 10*l.*, the only good beast we saw sold was a two-year-old draught colt belonging to Mr. Davison, Coghill, which brought 26*l.*

CAMELFORD FAIR was well supplied, and nearly 3,000 lambs changed hands, varying in price from 16s. to 28s. At the bullock fair a better show of cattle was never seen, but in consequence of the long drought and great scarcity of grass, sales were very limited, only about 160 changing hands, and many of these not until late in the evening.

DUNSE LAMB FAIR.—The supply of lambs was considerably smaller than last year. There was a good demand, and sales were readily effected at higher prices than at Cornhill Fair last week. Almost the whole were disposed of. Bred lambs brought from 22s. to 25s.; three-parts-bred from 20s. to 22s. There were very few half-bred lambs; the price, however, may be quoted at from 18s. to 20s. 6d. There was a small show of sheep, which met with a fair demand at 6d. to 6½d. per lb. Several lots of lean cattle were in the market, but very little business was done in them.

EXETER FAIR.—There was a good supply of fat stock, and prices had a downward tendency. Trade, however, ruled dull. Best beef, 10s. to 10s. 6d. per score; cows and calves, 12*l.* to 16*l.* steers, 10*l.* to 15*l.*; working oxen, 15*l.* to 20*l.* each.

HORSHAM LAMB FAIR.—We had about 12,000 lambs. They were nearly or quite all sold, and the price ranged from 16s. 6d. to 29s. per head. There were a great many horses in the fair, and trade was rather dull with them and with horned cattle. The long continued dry weather has made the aftergrass short, and buyers were less eager to purchase in consequence.

KNIGHTON FAIR.—Sheep brought 6½d. to 7d. per lb. Pigs were, in fact, nowhere in price. Horses of a useful character found purchasers at good prices.

OVERTON FAIR.—The supply of lambs was under the average, that of ewes and wethers about the usual number. The trade was dull and hanging during the early part of the day, but ultimately a clearance was effected at about last year's prices. Lambs from 21s. to 36s., extra 38s. to 40s.; ewes, 30s. to 45s.; one superior lot belonging to Mr. Francis Budd, of Hatch Warren, realizing 55s.; wethers, 35s. to 45s.

PETERBOROUGH FAT STOCK MARKET, (Wednesday last.)—Though we were well supplied with stock, yet as there were also many buyers the trade for Beasts and Sheep was tolerably brisk at full prices. Beasts (80), 7s. 6d. to 8s. per stone; Sheep (850), 6d. to 7½d. per lb. Pigs flat.

SALISBURY FAIR.—About 1,000 sheep were penned. There was a larger attendance of buyers than at any previous fair, and the whole changed hands at prices slightly in advance of those obtained at Stockbridge. In fact there were more buyers than sellers. Lambs realized from 22s. to 28s.; one lot fetched 35s.; ewes from 30s. to 40s.; and wethers from 32s. to 45s. The prize lot were sold at 50s. The show of horses was very good, and the animals realized high prices.

SHERBORNE FAIR.—The supply of stock was small, and business was slack on account of the shortness of keep. There were about 2,000 sheep penned. Down lambs sold at from 18s. to 25s. each, in their wool. Wethers from 25s. to 26s. per head; ewes from 25s. to 30s. each. Mutton and lamb 7d. per lb. Beef 10s. to 11s. per score. A very short supply of Devon steers and oxen, there being only about 50 on offer; of these but few were sold. There was rather a large number of Irish yearling heifers, and steers of a better quality than formerly, but very few were sold. Cows and calves also met a dull sale. There were over 200 pigs for sale: barren sows fetched from 45s. to 50s. each; stores from 18s. to 32s.; inferior stores 10s. to 12s. A great many were driven away unsold. The horse fair was a small one. There were a few good cart colts and cart horses; the trade was very slack; high prices were asked for the best animals, but only a few found customers. Some cart horses were sold at from 35*l.* to 40*l.* each.

SHREWSBURY FORTNIGHTLY MARKET.—The best fat heifer beef sold readily from 6½d. to 7d. per lb.; inferior cows under that figure. Fat calves 6d. per lb. Cows and calves selling at fair prices, also store cattle, considering the dry season. Fat wether sheep from 6¾d. to 7d.; ewes 6½d. Fat lambs from 18s. to 25s. each. Pigs altogether lower in price.

ST. BOSWELL'S LAMB FAIR.—The stock was not so extensive as it has been for many years past, and was hardly in the same condition as last year. It was principally composed of three-parts bred sheep; also a few lots of bred and half-bred lambs. There was a fair turn out of hoggs—both bred and a few Cheviots, which were in tolerably good condition. The buyers were numerous from every part of the country, more particularly from England, and from various districts in Ireland. At the close of the market a considerable number of lambs of all kinds were turned off unsold.

WARWICK MONTHLY FAIR.—This fair was held on Monday last, when many farmers were present to see the preliminary trials connected with the Royal Agricultural Society, but there was a small attendance of buyers. Beef fetched from 6½d. to 7d. per lb., and mutton, of which there was a limited supply, from 6½d. to 7d. per lb. Lambs from 8d. to 8½d. per lb. From the above-mentioned reason, everything was sold early in the day.

WEDMORE FAIR.—Everything had a downward tendency. Best beef realized from 10s. to 10s. 3d., the top figure; inferior from 8s. to 9s. 3d. per score. In sheep there was a sensible reduction of 4s. to 6s. per head. For store pigs there was little demand.

YORK FORTNIGHTLY MARKET.—Calving and dairy cows were in good supply and demand. Grazing beasts were in supply above requirement, and, except for animals of good quality, business was dull. Fat beasts, 6s. 6d. to 7s. 6d. per stone—mutton sheep, 6d. to 6½d. and 7d. per lb. Altogether rather a dull market.

IRISH FAIRS.—KELLS: The supply of stock was large. Some prime lots of beef were bought up quickly, as well as store bullocks, which fetched tolerable prices, but all inferior sorts were unsaleable. Sheep were also plentiful, and all cleared off before the evening. Small pigs sold at low rates. The horse fair was dull, but a good many were sold throughout the day.—BALLIBAY: The buying was not brisk, owing to the drought. Dry cows were plenty, but not in demand. —NAVAN: Good beasts sold tolerably well, but inferior sorts were unsaleable. The sheep market was rather animated, and wedders brought from 48s. to 58s. each. Lambs were in brisk demand, and the supply was good.—DUNDALK: Some excellent cattle in the beef line were exhibited, and were early bought up at from 58s. to 60s. per cwt. under sink. Inferior and middling beef could be bought at from 46s. to 54s. per cwt. The prices of fat cattle rated at from £13 10s. to £20 generally. A fair supply of sheep, and a plentiful supply of lambs. The prices of these were a little depressed—very good ones selling for 25s. each, and from that down to 20s. being the run.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The past month from its forcing character has brought on an early harvest. Excessive heat with many severe and destructive storms have been its characteristics. As these storms commenced in June, very few remember so peculiar a summer. The early and heavy pieces of wheat, as well as barley, have sustained much damage, especially in some parts of Yorkshire, and the midland and southern counties, where there was much hail, which riddled the corn, while an unusual breadth has been permanently laid. The heat, too, has produced premature ripeness, and the light lands promise a very poor return of thin grain, of very little use to the miller.

The hay crop has been good and well harvested.

The armistice announced after the first week, followed by the conclusion of peace, between France and Austria, coupled with the forcing weather, have produced a further decline in wheat of fully 2s. to 3s. per qr.; but the appearance of new samples, confirming the opinion that the crop will not exceed an average, caused a little reaction at the month's close.

The most favourable accounts come from the west, and the worst from the fens, which suffered severely from drought. In Scotland also there are general complaints, but Ireland seems not to have equally suffered.

The early potatoes turn out very bad in many places; and the disease appears to make daily inroads on the bulk of the crop, so there is generally but a poor prospect as respects this esculent.

In Spain, Italy, and the south of France, the wheat is generally gathered, the latter country not yielding so well as last year, and some deficiency is expected in Belgium and Holland. Northern Europe has only gathered the rye and rapeseed, the former proving very light and defective; but the wheat promised well, though in the interior of Russia reports were very unfavourable as respects this grain, and markets were consequently firm at Petersburg.

In America all things went well until the 4th of June, when a severe frost nearly swept off all the fruit, with a good deal of maize, and inflicted some injury on the wheat, as far west as Ohio. Yet, as the harvest in the southern States was over, and the north had since experienced finer weather, a better gathering than last year was still expected.

There can be little doubt that both in our own country and France there will be a great variety in the samples of wheat; and the scarcity of labour so far impedes the gathering, that with bad weather we should experience a rapid advance upon present prices; while the unsatisfactory nature of the peace concluded gives a cloudy atmosphere to politics, the course of which may be far more complicated than reckoned on, and with all these eventualities, it seems improbable that farmers will force their stocks on to be sacrificed: indeed, supplies are diminishing already, and to this the turn may be traced, as with the exception of peas and oats, no cereals are expected to be abundant.

The following quotations, from foreign markets, show there is little inducement to continue the free exports to this country. At Bordeaux, fine white wheat was quoted 43s. 6d.; at Nantes, the price of white was 41s., of red 39s. per qr. of 480 lbs.; Paris quotes 39s. for best quality; at Antwerp, native wheat was about 46s.; at Louvain, a trifle more was paid for fine red; the best red at Rotterdam being worth near 48s. per qr.; Danzic, prices for high mixed were still 50s. to 52s.; at Hambro', the top price was 47s., at Konigsberg, the same; red at Stettin was worth 42s. 6d.; at Taganrog, 33s. 6d. was quoted for Ghirka red; at Odessa 35s. was paid for the same; prices at Genoa have been 52s. for native, but were declining and uncertain since the peace; at Algiers, soft new wheat brought about 42s., with a drooping tendency in the markets, in consequence of discouragement from Marseilles. New York was still high for breadstuffs, though flour and wheat were continually giving way: red Kentucky wheat was worth about 49s., and white Kentucky 62s. per qr., so that without a material change no imports may be expected thence.

The first Monday in London opened with a heavy supply of foreign wheat, and a fair portion of English. The morning's additions from the near counties were only moderate, but as the former receipts were not disposed of, there was a show of plenty. A heavy storm having occurred on Saturday night, which laid a good deal of corn, factors began by asking higher prices; but millers, who were only in moderate attendance, did not overlook the foreign supply, and refused to buy at any advance, only purchasing to meet the wants of the day. In foreign there was very little passing. A return of fine weather with the dull London reports produced a similar state of things in the country. Many barely maintained previous rates, as Birmingham, Louth, and Bristol; others as Hull, Leeds, and Wolverhampton, were 1s. per qr. lower Newcastle, Wakefield, and Gloucester noting a decline of 1s. to 2s. per qr. Though Liverpool was well attended, the price of wheat on Tuesday was lowered 2d. to 3d. per cental, and on Friday there was unusual depression, with a further fall of 3d. to 4d. per cental. Though Scotland was still poorly supplied with rain, wheat both at Edinburgh and Glasgow were rather in buyers' favour. In some parts of Ireland, as at Waterford, wheat also declined 6d. per brl., but at Cork it was firm. The week closed heavily in London.

The second week had only a moderate supply from abroad, the quantity being only one-third of the week previous ; but of English there was a fair arrival : Essex and Kent sent up an average quantity of samples, which with the previous accumulations made a full market. With the news of the armistice, and several days of brilliant weather, the market was severely depressed, and millers declining to make purchases without a concession of about 4s. per qr., factors eventually made sales on these terms, but this did not clear the stands. Those who were determined to sell foreign were obliged to accept a similar reduction, but the sales were then only retail. The country markets did not generally yield to this depression ; Bristol, Birmingham, and Wolverhampton only noted a decline of 1s. to 2s. per qr.; Sheffield and Stockton-on-Tees made the fall 2s. per qr.; Hull, Louth, and Newark were 2s. to 3s. cheaper ; but Boston, Lynn, and Gainsborough were within 1s. of the London decline. Liverpool, on the contrary, on Tuesday found some speculative inquiry for French wheat at 1d. to 2d. per cental advance, but on Friday the buyers had a turn in their favour. Both Scotland and Ireland reported dull and cheaper markets.

On the third Monday there was a large foreign and a fair English supply, with a good sprinkling of samples in the course of the morning from the near counties. A few early sales realized former rates, but millers subsequently not being disposed to increase their stock freely without about 2s. abatement, Essex factors resisted this further reduction, though it was accepted at some of the Kentish stands, where there was more desire to sell. The bulk of the samples were, therefore, held over, and in the course of the week factors placed the whole without abatement. In the country markets the supplies this week were small, and some places were consequently dearer, more especially as storms occurred, doing further damage. Newcastle was 2s. per qr. dearer, and Norwich improved 1s. to 2s.; Gainsborough and Market Harborough were as much down, but generally there was no change from previous prices. Leeds and Birmingham realized 1s. per qr. more money. Liverpool on Tuesday was better attended, with freer sales, and on Friday there was an upward movement to the extent of 1d. to 2d. per cental.

On the fourth Monday, both foreign and English supplies were fair, with about the usual show from Kent and Essex for the time of year. Among these samples were two of new white wheat, one of fair quality from Essex, the other from Kent very thin. The recurrence of storms and unsettled appearance of the weather, as well as the advance at the close of the week in some country markets, enabled factors to realize fully 1s. per qr. advance on English qualities, the same improvement being occasionally realized on foreign in retail.

The London averages show a decline of 2s. 8d. in the course of the month, receding from 48s. 3d. to 45s. 7d., while the general averages, which are a week behind them, only exhibit a decline of 1s. 9d., commencing with 48s. 3d. and closing at 46s. 6d. The imports for the four weeks into London were 16,749 qrs. English, 79,628 qrs. foreign wheat, against 15,920 qrs. English, 59,636 qrs. foreign, in July last year. The imports into the kingdom for June were, 645,823 qrs. wheat, 663,035 cwts. flour. The exports were nil.

The flour trade as respects town-made of first quality has not varied, 46s. per sack still being the quotation of millers, but Norfolk and French qualities have receded in value, after some fluctuations, to the extent of 3s. per sack. The imports have fallen off, but the weather has been against sales. There have been received into London in the four weeks 44,483 sacks from the country and 10,488 sacks from France—against 66,330 sacks country, 16,602 brls. American this time last year.

The barley trade in the course of the month has little varied; but grinding sorts have declined, especially the light sorts, from the fictitious value placed on them by the extraordinary demand for the French army : in these sorts there is a reduction of about 3s. per qr., but of the heavier and sweet sorts fit for distillation the decline has been about 1s. per qr. By the few new samples of English brought to market for the first time on the third Monday, it is expected that much will be thin and small. The imports for the four weeks into London have been only 417 qrs. of English, with 35,333 qrs. foreign—against 616 qrs. English and 52,906 qrs. foreign for the same period in 1858. The entire imports of June for the kingdom were 95,345 qrs.

In malt there was a decline of 2s. per qr. on the third Monday, which is the only change to note.

Without heavy supplies the oat trade all through the month has been very dragging, with a downward tendency, though the positive decline has scarcely been 6d. per qr., and this more on Russian sorts than any other. The heavy rains have been most serviceable to this crop, which is generally reported to be very promising in the yield and quality. The forcing weather has prevented the market feeling a pinch as to stocks, as harvest has already begun; but as old corn for some time will still be wanted, we do not anticipate much decline on such, the consumption being enormous. The receipts in four weeks in London have been 1,793 qrs. English, 4,454 qrs. Scotch, 2,233 qrs. Irish, 87,157 qrs. foreign—against 1,154 qrs. English, 2,102 qrs. Scotch, 1,297 qrs. Irish, and 129,874 qrs. foreign, in July, 1858, showing a great falling off as respects the foreign supply, and had the harvest been protracted this grain must have been dearer. There have been 6,088 qrs. exported this month. The total imports for June were 118,917 qrs. throughout the kingdom.

In beans, as usual at this time of year, there has been but little doing, and scarcely any change of value can be noted. Less is to be expected from Egypt this season, but it may be made up by France. In our own country the crop of winter is said to have severely suffered, but spring turn out better than expected, the rains having filled the pods. The imports in four weeks for London were 1,277 qrs. English, 1,840 qrs. foreign—against 1,217 qrs. English, 3,106 qrs. foreign in July, 1858. The imports into the kingdom for June were 19,778 qrs.

In peas also little has been doing. This crop is well spoken of, the few new samples, both of white and grey, being very sound and dry; the former were worth 45s., and the latter about 38s. The high value of maples has now ceased, and boilers, for the want of continued contracts, have receded in value heavily, it being doubtful whether the present low value will long obtain; but the future demand must settle this question. The imports for the four weeks in London were 265 qrs. English, 2,771 qrs. foreign—against 302 qrs. English, 5,945 qrs. foreign in July, 1858. The imports for the kingdom in June were 9,142 qrs. only.

Of linseed there has been a good supply, with moderate exports. This article has, however, maintained its value steadily, and the same may be said of linseed-cake. New rapeseed has appeared freely, and settled at the moderate price of 56s. per qr., which is considerably below the starting point, and, indeed, the easy rates already seem to have attracted some attention and brought free buyers. Trefoil turns out very poor in quality, the excessive heat having prevented the seed perfecting its growth; the rates hitherto obtained have not therefore exceeded the prices of old. Some are of opinion that there will not be much of a cloverseed crop, and that the rains have fallen too late; we think, however, there is plenty of time for a fair yield. In other seeds very little has been doing. Canaryseed all through the month has ruled at moderate rates, fair quality being procurable at 66s. per qr. Hempseed has been selling only in retail at former prices, and mustardseed has hardly attracted attention, crushers waiting for the new crop. In carraway and coriander there has been no material change.

CURRENCY PER IMPERIAL MEASURE.

				Shillings per	Quarter.
WHEAT, Essex and Kent, white				39 to	49
,, red				37	45
Norfolk, Linc., and Yorks., red				37	45
BARLEY, malting	— to	31	Chevalier	31	35
Grinding	26	27	Distilling	28	30
MALT, Essex, Norfolk, and Suffolk	49 to	57	fine	58	64
Kingston. Ware, and town made	49	57	,,	58	64
Brown	48	49		—	—
RYE ... new	—	—		30	31
OATS, English, feed	21	25	Potato	26	29
Scotch, feed	22	26	Potato	25	29
Irish, feed, white	21	23	fine	25	27
Ditto, black	21	23	,,	—	24
BEANS, Mazagan	39	41	Ticks	39	41
Harrow	40	44	Pigeon	45	48
PEAS, new, white, boilers	40	45	Maple 42 44.. Grey	38	40
FLOUR, per sack of 280lbs., Town, Households 38s., fine nomi.					46
Country., nominal	29	31	Households	32	36
Norfolk and Suffolk, ex-ship				29	30

FOREIGN GRAIN.

				Shillings per	Quarter.
WHEAT, Dantzic, mixed	50	—	high do. — 53 extra	—	56
Konigsberg	50	51	,, — —	—	—
Rostock	50	—	fine 53 old 54	—	—
American, white	42	50	red 42 48	—	—
Pomera., Meckbg., & Uckermrk, red	47	49		—	—
Silesian, red	41	46	white	45	52
Danish and Holstein				46	48
Russian, hard	44	46	French 40 46 white	44	48
St. Petersburg and Riga				42	46
Rhine and Belgium				—	50
BARLEY, grinding	26	28	Distilling	28	30
OATS, Dutch, brew, and Polands	23	27	Feed	20	24
Danish and Swedish, feed	20	24	Stralsund	20	24
Russian				20	22
BEANS, Friesland and Holstein				39	42
Konigsberg	37	39	Egyptian	35	37
PEAS, feeding	35	36	fine boilers	38	42
INDIAN CORN, white	32	33	yellow	32	34
FLOUR, per sack French	28	33	Spanish..none	—	—
American, per barrel, sour	22	25	sweet ... ,,	—	—

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS:	Wheat.		Barley.		Oats.		Rye.		Beans		Peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
June 11, 1859	51	5	31	8	25	11	41	9	45	0	41	5
June 18, 1859	49	11	31	5	24	11	36	9	46	7	40	3
June 25, 1859	48	3	31	1	24	9	37	6	46	8	41	9
July 2, 1859	46	4	30	9	25	10	33	9	46	1	40	9
July 9, 1859	46	9	31	10	25	6	34	3	47	7	41	2
July 16, 1859	46	6	29	11	25	3	40	6	45	10	39	8
Aggregate average	48	2	31	1	25	5	37	5	46	3	40	10
Same time last year	43	9	31	0	26	2	30	11	42	7	43	4

COMPARATIVE AVERAGES—1858-59.

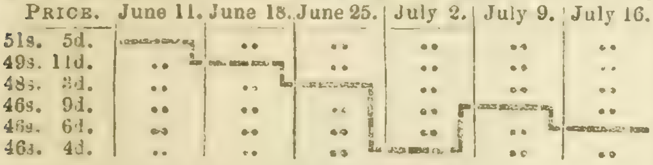
From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1858.		s.	d.
Wheat	74,665 qrs.	46	6	Wheat	91,252 qrs.	45	3
Barley	1,108 ..	29	11	Barley	1,343 ..	30	4
Oats	3,118 ..	25	3	Oats	2,734 ..	26	5
Rye	10 ..	40	6	Rye	93 ..	30	8
Beans	1,182 ..	45	10	Beans	1,357 ..	43	3
Peas	102 ..	39	8	Peas	77 ..	44	5

MONTHLY RETURN.

An Account shewing the Quantities of Corn Grain, Meal, and Flour, imported into the United Kingdom, and admitted to Home Consumption, in the month of June, 1859.

Species of Corn, Grain. Meal, and Flour.	Imported from foreign Countries.	Imported from British Possessions out of Europe	Total.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat	645823 0	0 2	645823 2
Barley	95341 6	5 0	95346 6
Oats	118917 2	—	118917 2
Rye	8967 3	—	8967 3
Peas	7706 7	1435 2	9142 1
Beans	19778 6	—	19778 6
Maize or Indian Corn	46985 5	—	46985 5
Buck Wheat	1791 2	—	1791 2
Bere or Bigg	—	—	—
Total of Corn and Grain	945311 7	1440 4	946752 3
	cwts. qr. lb.	cwts. qr. lb.	cwts. qr. lb.
Wheat Meal and Flour.	662919 1 24	116 0 20	663035 2 16
Barley Meal	—	—	—
Oat Meal	1 0 0	11 3 0	12 3 0
Rye Meal	2 0 0	—	2 0 0
Pea Meal	—	—	—
Bean Meal	—	—	—
Indian Meal	121 1 18	—	121 1 18
Buck Wheat Meal	11 1 13	—	11 1 13
Total of Meal and Flour.	663055 0 27	127 3 20	663183 0 19

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

LONDON, Monday, July 25.—The market for Cloverseeds remains without alteration, and without any business passing. New Rapeseed comes in fair quantity and sold at last week's values. Canaryseed met a better sale at full prices.

Cutler & Barker, Seed-factors.

BRITISH SEEDS.

Mustardseed, per bush., new 12s. to 17s, brown	10s. to 12s.
Coriander, per cwt.	14s. to 16s.
Canary, per qr.	64s. to 66s.
Trefoil, new	—s. to —s.
Tares, Winter, new, per bushel	—s. to —s.
Linseed, per qr., sowing —s. to 64s.. crushing	54s. to 58s.
Linseed Cakes, per ton	£9 10s. to £10 10s.
Rapeseed, per qr.	54s. to 58s.
Rape Cake, per ton	£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to —s. white	—s. to —s.
Trefoil,	—s. to —s.
Hempseed, small, 33s. per qr. Dutch	—s. to 38s.
Coriander, per cwt.	16s. to 18s.
Carraway ,,	36s. to —s.
Linseed, per qr., Baltic 52s. to 56s.... Bombay	58s. to 60s.
Linseed Cake, per ton	£9 10s. to £11 0s.
Rapeseed, Dutch	54s. to 58s.
Rape Cake, per ton	£5 0s. to £6 0s.

HOP MARKET.

BOROUGH, Monday, July 25.—We have no alteration to report in the character of our market, which is very inactive at last week's quotations. The plantations are progressing favourably, and the duty has been backed at £250,000.

Mid and East Kents	80s. to	105s.	choice	140s.
Weald of Kents	65s.	68s.	,,	75s.
Sussex	56s.	62s.	,,	68s.

WORCESTER HOP MARKET, Saturday last.—There is an improvement in our hops, and £20,000 duty is now backed. The quality is expected to be very superior, if they finish well, as the burr must be greatly assisted by these warm rains. Market quiet.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, Monday, July 25.—The supplies of Potatoes have become very moderate. For most kinds there is a fair demand, at very full prices. Shaws are selling at from 100s. to 140s., Regents 120s. to 160s. per ton. No foreign Potatoes are on offer.

COVENT GARDEN MARKET.

LONDON, Saturday, July 23.—Grapes and Pine Apples still still realize fair prices. West India Pines have been plentiful and good. Gooseberries, Currants, and Raspberries are getting scarcer, and Cherries and Strawberries are nearly over. English Apricots have made their appearance. Greengage Plums obtain 2s. a dozen. Oranges fetch 8s. 6d. and10s. per 100. Nuts of all descriptions continue to realize fair prices. Cabbages and French Beans are plentiful. Rhubarb, Asparagus, and Seakale are getting over. Peas, Beans, Horn Carrots, and Globe Artichokes may be obtained in quantity. Cauliflowers are cheaper. New Potatoes realize from 6s. to 15s. per cwt. Cucumbers abundant. Cut flowers chiefly consist of Orchids, Gardenias, Kalosanths, Lily of the Valley, Violets, Mignonette, Heaths, and Roses.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Figs, per doz	6 0 to	6 0	Pineapples, per lb.	6 0 to	0 0
Apples, per doz	6 0	10 0	Currants black, p. ½-s.	5 0	0 0
Oranges, per 100	6 0	10 0	Apricots, per dozen	4 0	6 0
Melons, each	4 0	8 0	Lemons, per dozen	1 0	1 6
Cherries, per lb.	0 6	1 6	Plums, per punnet	3 0	0 0
Cobs per lb.	1 3	1 6	Raspberries per punn.	0 6	1 0
Grapes new, per lb.	3 0	6 0	Peaches, per dozen	10 0	15 0
Nectarines, per dozen	10 0	15 0	Strawberries, per baskt	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Cauliflowers per doz.	2 0 to	4 0	Beet, per dozen	1 6	2 0
Greens, per doz. bunches	1 0	1 6	Leeks, per bunch	0 0	0 0
Cabbages, per do.	1 6	2 6	Celery, per bundle	1 0	1 6
Seakale, per punnet	0 0	0 0	Shallots, per lb.	0 6	0 8
French Beans, per pun.	1 0	1 6	Garlic, per lb.	0 6	0 8
Asparagus, per bundle	2 6	5 0	Lettuce, cab., per score	1 0	1 6
Rhubarb, per bundle	0 6	0 9	Tomatoes, per dozen	2 0	4 0
Potatoes, per ton	90 0	100 0	Endive, per score	1 0	1 6
Do. per bush.	2 0	2 9	Radishes, turnp, per doz.	0 0	0 0
Do. per cwt.	4 0	6 0	Horseradish, per bundle	1 6	4 0
Do. new, per lb.	0 0	0 0	Mushrooms, per pottle	0 9	1 3
Green Peas, per quart	1 0	2 0	Parsley, per 12 bunches	2 0	4 0
Carrots, per bunch	1 0	0 0	Artichokes, per doz.	2 0	3 0
Turnips, per bunch	0 9	1 0	Marjoram, per bunch	0 0	0 0
Spinach, per sieve	1 6	2 0	Savory, per bunch	0 2	0 4
Cucumbers, per doz.	2 0	6 0	Mint, green, per bunch	0 0	0 0

CHICORY.

LONDON, Saturday, July 23.—Nearly all kinds of Chicory have changed hands slowly. In prices, however, we have no change to notice. The supply at the market is tolerably good.

ENGLISH, per ton	£ 9 0 to	£ 0 0	ANTWERP	£ 9 0 to	£ 9 5
HARLINGEN	8 5	9 0	DACKUM	0 0	0 0
BRUGES	9 0	9 10	GUERNSEY	8 10	0 0
HAMBURG	9 0	0 0	BELGIUM	9 0	9 5

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:	s.	s.
Friesland	100 to	108	Cheshire	60	80
Kiel	—	—	Cheddar	60	82
Dorset	100	108	Double Gloue	60	70
Carlow	96	100	HAMS:		
Waterford	96	100	York	78	86
Cork,	90	106	Westmoreland	78	86
Limerick	—	—	Irish	70	80
Sligo	90	100	BACON: Wiltshire, dried	66	72
Fresh, per dozen	11s. 6d. to	14s. 0d.	Irish, green	58	66

ENGLISH BUTTER MARKET.

LONDON, Monday, July 25.—More improving prices for fine butter, which is still very scarce, but a plenty of middling quality received on the market unenquired for.

Dorset, prime	per cwt.	112s. to 114s.
Middling	,,	nominal.
Devon	,,	104s. to 106s.
Fresh	per doz. lbs.	12s. to 14s.

GLASGOW CHEESE MARKET, (Wednesday.)—Supply small, and prices firm. There were 6 tons passed through the weigh-house scales, and four carts in the Bazaar. Current prices—prime old, 70s.; new, 53s. to 58s.; skim, 22s. to 24s. per cwt.

CREWE CHEESE FAIR.—There was a supply of good cheese, upwards of 30 tons. There was an abundance of buyers, the prices obtained averaging from 55s. to 75s. per cwt., which at this season of the year is considered very good.

HAY MARKETS.

Saturday, July 23.—SMITHFIELD.—A fair demand.
CUMBERLAND.—Trade steady at full prices.
WHITECHAPEL.—A moderate inquiry on former terms.

At per Load of 36 Trusses.

	Smithfield.	Cumberland.	Whitechapel.
MEADOW HAY ..	60s. to 95s.	60s. to 95s.	60s. to 95s.
DO., NEW	70s. 80s.	70s. 80s.	70s. 80s.
CLOVER	60s. 110s.	60s. 110s.	60s. 110s.
DO., NEW	80s. 90s.	80s. 90s.	80s. 90s.
STRAW	25s. 30s.	25s. 30s.	24s. 29s.

TIMBER.

LONDON, Saturday, July 23.—Our market is very inactive for the time of year, and the arrivals from the Baltic continue extensive. The demand generally is somewhat heavy, but we have no change to notice in prices.

Per load—	£ s.		£ s.
Quebec, red pine	3 10	to	4 10
Yel. Pine	3 10		4 5
Quebec Oak, White...	6 0		6 5
,, Birch........	4 0		4 15
,, Elm..........	4 10		5 10
Dantzic Oak..........	4 0		6 0
Memel Fir............	3 10		4 5
Swedish.......... ...	2 10		3 0
Masts, Qubc. Red Pine	6 5		6 10
Do. Yellow Pine....	5 0		6 10
Lathwood, Dantzic fm	8 0		9 10
Do. Memel..........	10 0		11 0
Do. Quebec	5 0		5 5
Deals, per C. 12 ft. by 3 by 9 in.:			
Quebec Wh. Spruce.	9 0		11 5
Do. Red Pine	11 10		17 0
St. John Wh. Spruce	11 11		15 0

	£ s.		£ s.
Deals, Yel. Pine, per reduced C.:			
Canada, 1st quality.	15 0	to	15 5
Do. 2nd do.	10 0		10 0
Archangel Yellow..	15 0		16 0
Memel..............	13 0		15 0
Gothenburg Yellow.	12 0		12 10
Do. White........	11 0		10 10
Gefle Yellow, 14 ft..	30 0		0 0
Christiania, per C. 12 ft. by 3 by 9 in.:			
Yellow..............	22 0		26 0
White...............	17 0		21 10
Deck Plank, Dantzic, per 40 ft. by 3 in....	1 0		1 10
Staves, per Standard M.:			
Quebec Pipe........	75 0		0 0
Do. Puncheon....	20 0		23 0
Baltic Crown Pipe.	110 0		120 0

WOOL MARKETS.

ENGLISH WOOL MARKETS.

LONDON, Monday, July 25.—Owing, in some measure, to the firmness with which the colonial wool sales are progressing, there is an improved feeling in the demand for all kinds of home-grown Wool, at fully—but at nothing quotable beyond—the late advance in prices. Several parcels have changed hands for shipment to Belgium, and the home trade is decidedly firm, notwithstanding that stocks are rather heavy.

Per pack of 240lbs.

		£	s.		£	s.
Fleeces—	Southdown Hogs............	£19	0	to	£20	0
Do.	Half-bred Hogs	18	10		19	0
Do.	Kent	17	0		18	0
Do.	Southdown Ewes and Wethers	16	10		17	0
Do.	Leicester do...............	15	10		16	10
Sorts—	Clothing, picklock	18	10		19	0
Do.	Prime and picklock	17	10		18	0
Do.	Choice........................	16	0		17	0
Do.	Super.........................	14	0		15	0
Do.	Combing—Wether matching ...	20	0		21	0
Do.	Picklock.....................	17	0		18	0
Do.	Common	14	10		15	10
Do.	Hog matching	23	0		24	0
Do.	Picklock matching...........	17	10		18	10
Do.	Super do.	14	10		15	10

LEEDS (ENGLISH AND FOREIGN) WOOL MARKETS, July 22.—There is still a good deal of excitement in the English wool trade, though at present it seems to be more confined to the stapler than the manufacturer. Prices are firm at the highest quotations of last week. There has not been much doing in colonial wool, but the advance in London will secure improved prices for stocks in this market. There is a good demand for low wools at somewhat higher rates.

BRADFORD WOOL MARKET, (Thursday last.)—The transactions in wool have been more between stapler and stapler than to consumers; the latter look with suspicion on wool at the present high rates, and buy only what is necessary for their immediate requirements. In noils and shorts there is no change worthy of notice.—*Bradford Observer.*

YORK WOOL MARKET.—We had about 300 sheets of wool, 60 of which were Moor wool, reducing good-bred wools to 240 sheets, nearly all of which were sold at advanced prices. Moor wools had slow sale at 9s. to 10s., superior ditto in clean condition 10s. 3d. per stone; this description of wool has not advanced along with the well-bred sorts.

DONCASTER WOOL MARKET, Saturday last.—The wool trade was less lively to-day. The large buyers being well supplied, are less anxious in securing lots, and the advance given by dealers during the week in Lincolnshire was not responded to here, and fewer buyers attended, so that several lots remained over unsold at a late hour of the day.

LIVERPOOL WOOL MARKET, July 23.

Scotch.—This being the week in which the great Scotch fairs take place, the trade are generally there, and in consequence there has been little doing here, and that at a slight advance on late rates, and quotations are according.

		s.	d.		s.	d.
Laid Highland	Wool per 24 lbs.....	11	0	to	12	6
White Highland	do..............	14	6		15	6
Laid Crossed	do.. unwashed....	14	0		15	0
Do.	do.. washed	15	0		16	0
Laid Cheviot	do.. unwashed	15	6		18	0
Do.	do.. washed	18	0		24	0
White Cheviot	do.. washed........	34	0		40	0

LONDON WOOL SALES.

CITY, Monday, July 25.—The second series of public sales of foreign and colonial Wool for the present year commenced on Thursday last with a full attendance of both home and foreign buyers. The biddings were exceedingly active, and a general advance was established at 1d. to 1½d. per lb. on the rates current at the close of the last May sales. The quantity to be submitted at these auctions amounts to about 90,000 bales, viz., 25,400 bales Sydney, 23,800 Victoria, 9,300 Tasmania, 7,800 South Australian, 8,800 New Zealand, and about 14,900 of other descriptions.

FOREIGN AND COLONIAL WOOL MARKET.

	Per lb.	s.	d.		s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect	3	4	to	4	6
	Prima	2	4		3	0
	Secunda	2	0		2	4
	Tertia	1	8		1	10
Colonial:—Sydney—	Lambs	1	10		2	3½
	Scoured do.	1	3		2	10½
	Unwashed	0	10½		1	3
	Locks and Pieces............	0	0		1	9
	Slipe and Skin	1	6		1	7
Port Philip—	Lambs	1	9½		2	7½
	Scoured do..................	1	5		2	11½
	Unwashed	0	9		1	6
	Locks and Pieces............	1	1		1	4
S. Australian—	Lambs	2	4½		0	0
	Scoured do.	1	5½		2	9
	Unwashed	0	10		1	3
	Locks and Pieces............	0	11		1	9
V. D. Land—	Lambs..................	1	8½		1	10½
	Scoured do..................	1	8		1	7
	Unwashed	1	0		1	2
	Locks and Pieces............	1	3½		0	0
Cape of Good Hope—	Fleeces	1	2½		2	2½
	Lambs.......................	1	5½		1	10
	Scoured	1	2½		1	11½
	Unwashed....................	0	4		1	4½

MANURES.

PRICES CURRENT OF GUANO, &c.

	£ s. d.		£ s. d.
PERUVIAN GUANO, (per ton, for 30 tons)........	£12 0 0	to	£0 0 0
Do. Do............(under 30 tons)....	12 12 0		13 5 0
KOORIA MOORIA GUANO, (48 per cent. Phosphate and 4 per cent. Ammonia)	6 0 0		6 10 0

ARTIFICIAL MANURES, &c.

	£ s. d.		£ s. d.
Nitrate Soda (per ton)...	£16 0 0	to	£17 0 0
Nitrate Potash or Saltpetre	32 0 0		33 0 0
Sulpht. Ammonia	14 0 0		15 0 0
Muriate ditto...	20 0 0		26 0 0
Superphospht. of Lime....	5 10 0		6 0 0
Soda Ash, or Alkali......	11 0 0		12 0 0
Gypsum........	1 10 0		2 0 0
Coprolite.......	2 10 0		3 0 0

	£ s. d.		£ s. d.
Sulph. of Copper or Roman Vitriol, for Wheat steep., 1st qual.	33 0 0	to	35 0 0
Ditto, 2nd quality	24 0 0		28 0 0
Salt.............	1 0 0		1 5 0
Bones, Dust, per qr.	0 19 6		1 0 6
Do. ½-inch......	0 17 6		0 19 6
Oil Vitriol, concentrated, per lb........	0 0 1		0 0 0
Do. Brown.....	0 0 0¾		0 0 0

OIL-CAKES.

Linseed-cakes, per ton—	£ s. d.		£ s. d.
Thin Americn, brls	£10 0 0		£10 10 0
Ditto bags	9 15 0		10 0 0
Thick do. round (none)			0 0 0

	£ s. d.		£ s. d.
Marseilles......	£9 10 0	to	£10 0 0
English..........	10 10 0		0 0 0
Rape-cakes, pr ton	5 10 0		5 15 0
Cottonseed cakes	5 10 0		8 0 0

JOHN KEEN, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

Prentice's Cereal Manure for Corn Crops	per ton	£8 10 0
Mangold Manure	,,	8 0 0
Prentice's Turnip Manure..................	,,	6 10 0
Prentice's Superphosphate of Lime..........	,,	6 0 0

Manufactured by Hodgson & Simpson, Wakefield, and Matthews & Co., Driffield.

Nitro-Phosphate..................................	per ton	£7 10 0
Ammonia-Phosphate	,,	8 0 0

Vitriol, Bone, and Manure Works, Howden Dyke, Howden.

Ammonia Phosphate..............................	per ton	£8 10 0
Anderton's Turnip Manure......................	,,	8 0 0
Super-Phosphate of Lime	,,	7 0 0

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THE

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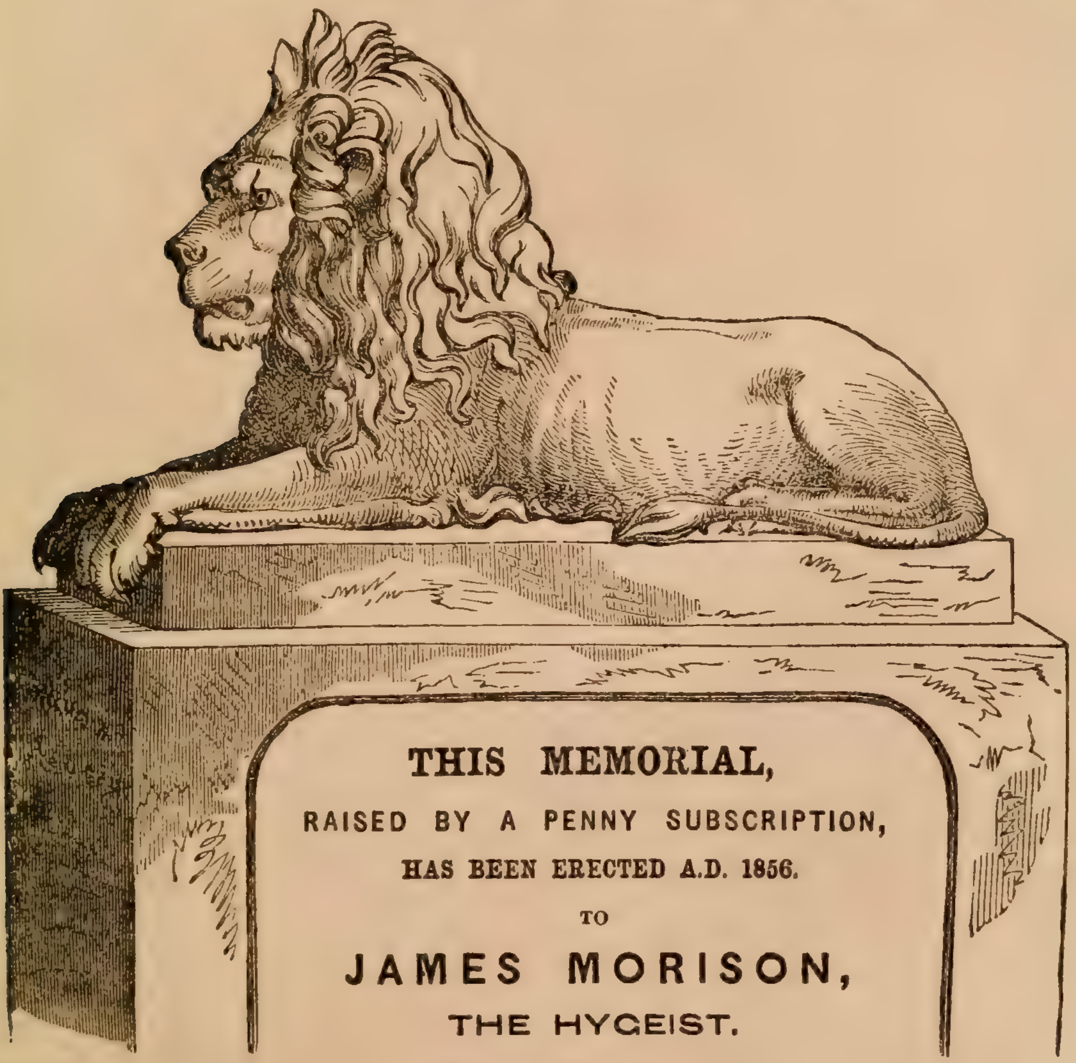
THE 31st OF MARCH, 1856.



REASONS FOR THE MONUMENT: BY JOHN FRASER, 71, PRINCE'S STREET, EDINBURGH.

Friends,—You will have perceived by the *Hygeist*, that a proposal, emanating originally from Hygeists themselves, has for some time been before the public, to erect a monument to James Morison, Esq., the founder of Hygeianism. Monuments to medical men are rarities in the world; not that there have not been great and good men in the profession, but because the want of sound medical principles, and success in curing, (facts universally known,) have always prevented the growth of deep public interest in the minds of the people, in reference to either the conflicting principles or practice of doctors. It is indeed wise that no such monuments should be erected. Such honours appropriately belong to those only, who have done substantial and extensive good in the world Now the highest medical authorities have themselves admitted "*That it is questionable whether their system has not done more real harm than good to the world.*" Therefore, to such a profession, monuments are not due. How different is the case with James Morison! His principles, and theory of disease are not conflicting, but accordant; and like all principles of everlasting truth, capable from their simplicity, of being easily understood by the common mind. For us to have been made, by his writings, to understand the general origin of disease, is an attainment unspeakably gratifying, and of unspeakable importance. In what a state of distraction have thousands of us been kept, when trouble was on ourselves, or in our families, because we could neither tell nor understand the causes of that trouble; and of course, had no principles to suggest a natural, and proper method of cure. Such a state of ignorance and uncertainty as this is extremely distressing in a sick family Enlightened by Hygeian principles, no such uncertainty exists now, with its consequent pain and di lieve. They have ever and anon stared us in the face; and though we do not believe Morison's medicine can make us immortal, we know what a vast and safe control it has over common ailments, thus permitting life to run its appointed, natural course, without being cut short by the suicidal hands of the common system of medicine. Admitting then, as we all do, that Morison has been the honoured instrument of saving thousands of lives, without perilling any, who, in this country of great inventions, and saving institutions, could more deserve a monument to perpetuate the memory of his deeds and discoveries?

Well, Morison, after being ripe with years wonderfully extended by his own medicine, gave practical testimony to the truth of his own system on his bed of death; and though now silent among the honoured dead, yet his system lives a blessing to the world at large. His sons possess the spirit, the principles, and the convictions of their departed Sire. They following his footsteps, maintain unflinchingly the Hygeian doctrines, and the British College of Health established by him. They maintain them, as the most of us well know, from incomparably higher motives than the mere love of gain. How often have they fought the battle of right against vindictive medical opposition at enormous expense! How perseveringly have they clung to the noble, the good, and the true cause! How indefatigable in their exertions to enlighten the public mind by publications without number; and to diffuse a knowledge of sound physiological principles irrespective of the sale of their medicine! How unceasingly have they exposed the system of medical poisoning; and made their warning voice reach, by their publications, to the very ends of the earth! How honestly, and how honourably, have they conducted the whole medical business of the College! Who has ever been able to convict them of fraud, or deceit, in all their public efforts and statements in reference to the practical operations of the Hygeian system of medicine? To encourage such noble and invaluable efforts, made by the sons of the great departed dead involving as they do, the good of the world—efforts made against the most powerful and extensive opposition, and against surrounding ignorance and prejudice in every disagreeable shape and form—I appeal but to the common sense of you all, if the erection of a monument, even in reference only to them and the cause they now uphold, be not worthy of our most ardent support. It is a most happy idea, to have the monument erected in front of the College, in the centre of the ornamental ground attached to the establishment. The effect will be most imposing and commanding. Fronting, and close to the great London thoroughfare, the New Road, it will daily command the attention of thousands from all parts of the world who throng that road; and lead to enquiries as to whom it represents, by whom it was erected, the cause it comemorates, and the nature of the principles connected with the name of Morison.

The monumental erection will thus become a most important, influential, and extensive teacher. It will be the first grand exhibition in Britain of a monument erected to a great, independent Medical Reformer. It will give telling evidence of mental expansion, elevation, and freedom of thought on the part of thousands in these countries, who have adopted the principles and the practice of Morison. It will prove they are honest in their convictions, for otherwise no such erection could ever have taken place. It will be a standing reproof to doctors, of the inefficiency, danger, and falsities of the greater part of their system. It will confer respect, dignity, and honour on the Hygeian cause; and be a ground of encouragement, and honourable pride to its followers. It will demonstrate that Hygeianism is an established fact in Great Britain; and on all these accounts, it will indeed be a noble triumph, to see a monument erected to the memory of the world's benefactor; and to the consecration of principles that have saved, and will yet continue to save countless, numbers of lives; control and subdue pain and suffering to a boundless extent; and restore to health, in the future as in the past, inconceivable multitudes who would otherwise have become the victims of disease, and of destructive treatment.

JOHN FRASER,
71, Prince's Street Edinburgh,
Hygeian General Agent for Scotland.

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1. The vital principal is in the blood.
2. Everything in the body is derived from the blood.
3. All constitutions are radically the same.
4. All diseases arise from impurity of the blood.
5. Pain and disease have the same origin.
6. From the intimate connection subsisting between mind and body, the health of the one must conduce to the serenity of the other.
7. Proper vegetable purgation is the only medicinal mode for effectually eradicating disease.
8. The discovery of a vegetable medicine was a desideratum.
9. This discovery was made by James Morison, the Hygeist, who also proclaimed "the medical liberty of the subject."

THE IMMORTAL HARVEY.—All Hygeists throughout the world will be glad to hear that at the base of the Morisonian Monument, at the British College of Health, the name of the discoverer of the circulation of the blood has been engraved in prominent characters. It is right that such should be the case, since the Hygeian system of James Morison, the Hygeist, is founded upon the great discovery of Harvey, who was at the time denounced by the medical profession as a quack and impostor.

BRITISH COLLEGE OF HEALTH, EUSTON ROAD, LONDON,
MARCH 18, 1859.

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4 lb. for	20 sheep,	price, jar included	£0	2	0
6 lb.	30	,, ,, ,, ...	0	3	0
8 lb.	40	,, ,, ,, ...	0	4	0
10 lb.	50	,, ,, ,, ...	0	5	0
20 lb.	100	,, ,, (cask and measure	0	10	0
30 lb.	150	,, ,, included)	0	15	0
40 lb.	200	,, ,, ,, ...	1	0	0
50 lb.	250	,, ,, ,, ...	1	3	6
60 lb.	300	,, ,, ,, ...	1	7	6
80 lb.	400	,, ,, ,, ...	1	17	6
100 lb.	500	,, ,, ,, ...	2	5	0

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price **5**s. per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

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"Scoulton, near Hingham, Norfolk, April 16th, 1855.

'Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and *th*at it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards. and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

"I remain, dear Sir, your obedient servant,
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"To Mr. Thomas Bigg." "R. RENNY.

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Ditto ditto with Iron-bar Drainer	5	0	0
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Ditto, plain, with Wooden Drainer.........	3	0	0

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No. 3, Vol. XVI.] SEPTEMBER, 1859. [Third Series.

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MONTHLY JOURNAL
OF
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DR. HASSALL
ON
THORLEY'S FOOD FOR CATTLE.
FROM THE "MARK LANE EXPRESS," 10th JAN., 1859.

74, WIMPOLE STREET, CAVENDISH SQUARE, 21*st December*, 1858.

HAVING, on more than one occasion, been requested to make an analysis of THORLEY'S WELL-KNOWN FOOD FOR CATTLE, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of THORLEY'S FOOD FOR CATTLE. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, thus, to the composition of THORLEY'S FOOD FOR CATTLE, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing THORLEY'S FOOD FOR CATTLE with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others, at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more valuable, but more expensive, articles. In some of the Foods I have detected ingredients which are positively hurtful.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. THORLEY'S FOOD FOR CATTLE is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the cleansing, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of THORLEY'S FOOD this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of THORLEY'S FOOD, they would be unable to extract all the nourishment which such articles actually contain. I consider, then, that the use of THORLEY'S FOOD is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—THORLEY'S FOOD FOR CATTLE as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,
Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected;" &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

Sir,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum*, and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-pint) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

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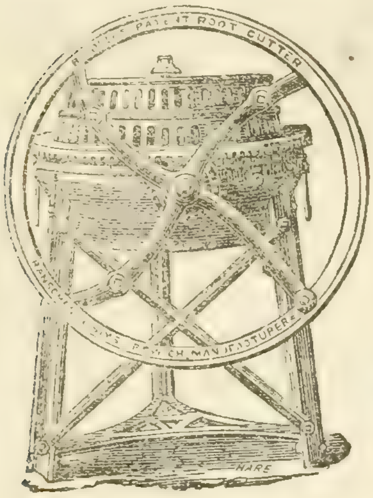

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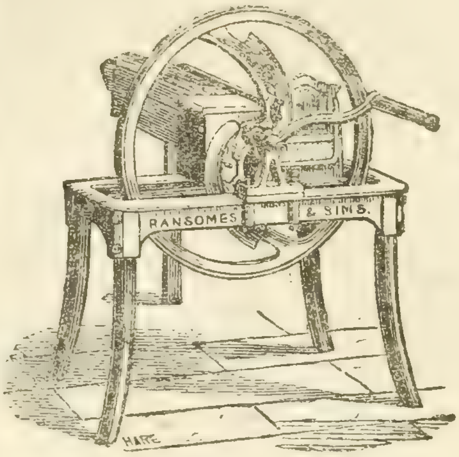

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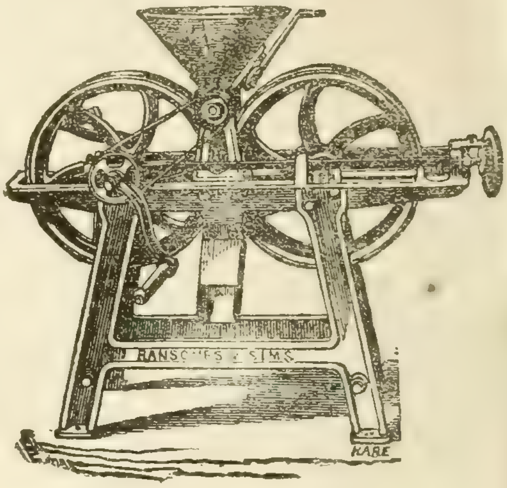

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THE FARMER'S MAGAZINE.

SEPTEMBER, 1859.

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THE FARMER'S MAGAZINE.

SEPTEMBER, 1859.

PLATE I.

STAR; A HEREFORD HEIFER,

LATE THE PROPERTY OF RICHARD HILL, ESQ., OF GOLDING HALL, SHREWSBURY.

Star, calved on the 15th of October, 1854, is by Master Henry (1314), out of Exhibition, a cow also bred by Mr. Hill.

Master Henry took the first prize at the Hereford Society's meeting in 1856, as well as many other local premiums. Stockton, the grandam of Star, took with her produce the first prize at the Shrewsbury show in 1853, as the best cow and calf, and subsequently the first prize at the Birmingham Fat Cattle Show.

Star was never exhibited but once, when at the Salisbury meeting of the Royal Agricultural Society of England, in July, 1857, she was awarded the first prize of 15 sovs., as the best three-year-old Hereford heifer in milk or in calf. This was a very strong class, including many beautiful specimens of the Hereford cow, with Star still as the "remarkably" good one amongst them. She was sold soon afterwards, at a long price, for Australia.

PLATE II.

GOVERNESS; A THOROUGH-BRED FILLY.

Governess, bred by Mr. Gratwicke in 1855, is by Chatham, dam by Laurel out of Flight by Velocipede.

Chatham, bred by Col. Peel in 1839, is by The Colonel, out of Hester by Camel. He was the best two-year-old of his time, and a winner of the July, the Buckenham, and the Criterion. Chatham went to the stud in 1845, and his stock opened well with Woolwich in 1848. He is also the sire of the following well-known winners—Sittingbourne, Gossip, Walmer, Rochester, The Earl, Homebrewed, Maidstone, Strood, Student, Eloquence, and Kent. Chatham is now settled at Mr. Gratwicke's seat in Sussex, and, we believe, has never left the country, from his first location there at Michel Grove.

This Laurel mare, bred by Mr. Fuller in 1840, is the dam of another Oaks winner, Rhedycina, as well as of Oxonian—as the dam of which she is commonly identified—and some seven or eight others not so well spoken of. She was put to the stud at three years old, and never appeared in public. Governess's dam has been in Mr. Gratwicke's possession since 1850. Another filly out of her, also called Governess, by the Merry Monarch, and only a year older than the Oaks winner, is in Mr. Mitchell's stud.

Governess is a mealy chesnut mare, standing close on sixteen hands and an inch high. She has a neat head, with small ears, and a good neck and shoulder, well thrown back. She has a great depth of girth, but is rather flat-sided and plain over her quarters, which are of fair size, but not particularly muscular. She stands rather upright before, and tapers from the arm and thigh downwards. Altogether, Governess is a large framed mare, but not with very great bone, nor much muscular development. She has, so, rather a leggy look, but will still pass in any company as a great, fine filly.

THE RIGHT TO UNDERGROUND WATER.

Chasemore *v.* Richards.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The supposed right to underground water has in most portions of the United Kingdom been the cause of considerable injury. This damage has not been confined to private property: the public have materially suffered; and not only in their health, but in the ill-cultivation of the land. Many thousands of acres of pastures have been merely producing coarse inferior grass, the result of soils surcharged with stagnant water; irrigation has been retarded, or entirely prevented; the atmosphere of considerable districts rendered unnecessarily damp and unwholesome.

Strange opinions as to the right to underground water have very materially led to this state of things. The law, also in such cases, was not, till the case of which I am about to speak, clearly defined by the courts of Westminster. Their decisions had become contradictory and injurious to the community. Every owner of land doubted his right to drain even his own estate, if by so doing he diverted the land-water towards, or into a new natural stream; or, even if in draining his own soil he drew the stagnant water from an adjoining undrained field belonging to a neighbour. In this state of the law need we wonder that every man, or associated bodies of men, sometimes adopted peculiar legal notions of their own? For instance, is it hardly matter of surprise that the commissioners of sewers deemed rivers to be merely ready-made public drains; and that, with much show of good reason, they regarded them as Nature's own freely-provided conduits for the removal of superfluous water?

Then, again, does it not excite a smile when we find what a celebrated engineer, the great Brindley, the father of some of our chief inland canals, deemed rivers provided for? He, too, had no doubt in the matter; for, when before a committee on a canal bill, he was asked what he thought rivers were intended for, he gravely answered, "to feed inland navigations."

Then, again, if we ask the owner of a water-mill what streams are really created for, does not his sincere reply tend in a similar direction? Do not the associations of millers, to be found in the valleys of most considerable streams, defend their rights as if they deemed rivers created only for water-mills? although they well know that water-mills are no small burthens upon the rights of their neighbours; that every raising of their mill-dam, for instance, however small, holds back the water on land that belongs to others. Have not mill-owners held—do they not hold—that no man can irrigate his land who has not an ancient right to do so, since, by so doing, by increased evaporation, he diminishes the volume of water in the mill-stream? Have they not in reality, for the sake of consistency, been driven to contend that all the rain-water which falls within a water-shed belongs to the mill-owners on the stream that drains the district within that water-shed? Did they not threaten the commissioners of the Surrey roads with an action, because they dug wells along their trust for the purpose of watering the roads? And when the inhabitants of Croydon dug a well on their own ground, for the purpose of supplying themselves with water, have they not spent thousands of pounds in law costs, and years in litigation, in an ineffectual attempt to prevent them using their own well-water?

And the vague dreams of the landowner have hardly been less remarkable. It is only a few months since that one of these, at York assizes, tried—ineffectually, it is true, but still he *tried*—to prevent a neighbour draining his own land in the ordinary way, because, in draining the substratum of peat (a stratum common to the whole district), it drained the plaintiff's substratum also, as well as some ponds sunk into the same level. And when the commissioners of sewers are laying down public drains to remove bad water, and its concomitants, discomfort and disease, from their district—if in so doing they happen to lower the water in some miserable unwholesome fish-pond, how desperately the owner is wont to cling to his unsightly tank; how ready he is to appeal to the law; how considerable are his demands for a recompence!

A very recent and memorable decision of the House of Lords, on this all-important question, has removed so many doubts as to the right to underground water, and will clear the way to such important improvements, not only in the better supply of water for domestic purposes, but to far more important advances in valley drainage, that it can hardly be too extensively known. I propose, then, to enter on this occasion a little into detail in this great case; but before I do this, I will endeavour to briefly show the obstacles which canals, water-mills, &c., far too frequently present to the drainage of a district, and then still more shortly trace the confusion of legal opinions which had arisen with regard to the law of underground water.

It is in the first report of Her Majesty's commissioners for enquiring into the health of towns (vol. ii. p. 420) that is to be found the evidence of the late Mr. James Dean (a land surveyor) on the obstacles to sanitary and agricultural improvement too often presented by mill-dams. He was speaking of a particular water-mill, and of the injury it inflicted in this way; but he added, "The case of this water-mill is so common a case, that I would urge it particularly on the attention of the commissioners, not only as affecting the sanitary condition of the population, but extensively the drainage and improvement of the land in the kingdom. I could bring forward instances, from every part of the country where I have been, of streams which should have a free flow, and should supply a town tailed up from ten to twenty feet, producing a sluggish and stagnant flow, interfering not only with the whole of the drainage immediately adjacent to the town, but with the beneficial use of the water for irrigation and other purposes above and below it. The extent of mischief produced by the right of tailing up streams for mill purposes appears to me not to be sufficiently appreciated. A mode of procedure for *the purchase of such rights*, and *for compulsorily taking them on settled and liberal conditions*, would be of the greatest importance for the general improvement of the health of towns, as well as for the general improvement of agriculture. It is scarcely an exaggeration to say, that for every pound of mill rent a hundred pounds worth of injury is done to other property, setting aside all consideration as to the effect of a proper drainage on the public health. The pecuniary injury is not confined to the effects on the direct or main stream, but is extended over its tributary branches often for miles distant. The extent of injury is rarely if ever traced. It is more commonly felt on attempts to drain lands, when it arises as an obstacle to the getting of a proper outfall. It also acts as an obstacle to beneficial irrigation. It has grievously interfered with my own operations for drainage, and must frequently interfere with any such operations on a large scale."

The evidence of Mr. J. Dean hardly needs any confirmation; if it did, why unfortunately that testimony would be too readily found in all directions. Mr. W. B. Wood, when speaking of the improvement to be made in land, by amending the channels of rivers and other watercourses, observes (*Jour. Roy. Ag. Soc.*, vol. xiii., p. 369), " Not the least cause of damage on many streams are the mills. In many instances a mill affects the drainage of much land, sometimes hundreds of acres above it, and does yearly more damage to such lands, by pounding the water, than its annual rent bears any comparison to."

Let the reader turn to the next volume of the same invaluable journal (vol. xiv., p. 130), and read the report of Mr. J. Henderson, on the Rye and Derwent drainage, and note the instances given of the obstacles which mill-dams present to improvement. To use the words of the reporter: " Let any one travel from the Tyne to the Bristol Channel, down the rich red-sandstone valleys, and observe the condition of the streams as to drainage, and he will have scope enough for his imagination in depicting the benefits which would result if all the mill-dams and artificial obstructions were removed, and the waters were allowed to regain the level of their natural outfall."

And at p. 419, in the same volume, Mr. Henry Evershed, in his prize report on the farming of Surrey, remarks, "A large portion of the land on the banks of the Wey and Mole is exceedingly flat and low; while the number of flour and other mills frequently compels the water to head back, to the great detriment of the land. Hundreds of acres are every year flooded from this cause, and under-drainage is of course out of the question."

Again, in the very next volume of the Society's journal (vol. xv., p. p. 3, 61), we find Mr. J. A. Clarke, in his prize essay on trunk drainage, warmly addressing himself to these evils. He says, "The number of brooks and streamlets thus held back as feeders for deep-water navigations, or lifted to gain a water-power for myriads of mills, often appropriating the whole descent of the stream, it is impossible for us to compute. Neither can we conjecture, except in the widest manner, the relative extent of the ground injured by the consequent floodings, in comparison with the magnitude of the interests dependent upon a continuation of the mischief." And in a subsequent page (61) he graphically describes the river Nene, "running a very sinuous course of about sixty miles, from Northampton to Peterborough, possessing a natural fall of 3¼ feet per mile, but this held up, in levels throughout, by no less than 33 water-mills for grinding flour, and 34 locks and 11 staunches—some for the mills, and some for the purposes of navigation; the natural fall being 177 feet."

It was some time after the date of this paper that Mr. Clarke again recurred to this great evil. This was in February of the present year, when addressing the members of the London, or Central Farmers' Club, he remarked (*Farmer's Magazine*, vol. l., p. 255), "Solomon says, 'All the rivers run into the sea.' But the grievance is that they don't; for whether or not the oriental streams with which the wise king was familiar may have all overflowed at intervals like the Nile and Jordan, it is certain that English fresh-waters at the present day seem inclined to linger in the valleys and repose on the meadows, or wander anywhere rather than roll straight down to the ocean. In some cases the outfalls, or river-mouths, are in a defective state; but, generally speaking, the exigencies of their alluvial deltas or estuary marshes have caused them to be to a considerable extent opened, embanked, and watchfully preserved. Thus, great outfall works have been executed on the river Dee, below Chester; at the mouth of the Parret and its connected rivers; in several harbours and estuaries along the shingly coast of the Channel; in East Norfolk; in the estuaries of the Ouse, Nene, and other Wash rivers; and in the streams converging to the Humber: while in Scotland we have the example of the Clyde improvements; and, again, the similar dredging of a deep channel for the Tay. But many great alterations and improvements yet remain to be carried out. However, it is the inland course of the streams that principally calls for amelioration. These natural arteries are employed for every purpose that water is good for; and the water is thus detained for such uses, in spite of drainage necessities, instead of being conducted speedily to the sea. They are dammed into reservoirs, intercepted for canals, especially in the central, northern, and western counties; and besides being neglected and choked with weeds or with osiers, or obstructed by strangulating bridges, innumerable brooks and rivulets are suffering from the diptheria of a water-mill, or a succession of mill-wheels appropriating the whole descent of the stream. Sometimes, hundreds of acres of meadow are ruined by the picturesque dilapidations of a mill mentioned in Domesday, or by the pounding of the water for the sake of a few baskets of fish. Not that there is any objection to the employment of running water as a motive power, or a means of transit, or a supply for towns, as an ornament in a park, or for the refreshing of a meadow, provided that damage of greater consequence is not inflicted upon any interest, and that there is an amply capacious channel for the outlet of the heaviest downfall, without overflow and without injury to lands by the prevention of the best husbandry. How many among the myriad water-courses of our country are all that can be desired in this respect, I cannot undertake to say; but the following record of actual disaster—to say nothing at present of the still greater mischief of good culture prevented—shows the prevalence of defective and ill-managed rivers." Mr. Clarke then gives a copious list, filling two or three closely printed columns, of the damages inflicted in our island upon the lowland farmers by the overflowing streams, and their impeded water-courses.

But to proceed to the law of these cases. The right of the adjoining proprietors to flowing streams —to have those streams uninjured by any interference, has long been recognised by our courts of justice; but they uniformly applied, till more recent times, a widely different doctrine to *underground* waters. Such waters seem to belong to him who first avails himself of them. And the distinction between them and the water of streams, was very fairly put by the late Judge Maule in Smith *v.* Kenrick (7 C. B. 546), where he observes: "The distinction between subterranean and surface rights appears to be this: As to surface flows, parties acquire rights to them because there is the acquiescence of everybody who has any interest in the matter; but as to underground percolation, no rights are gained because nobody knows anything about them."

In the year 1808 the first material confusion of ideas, with regard to underground water, began to arise. This was caused by the supposed ruling of Lord Ellenborough (a very considerable judge), in a case (Balston *v.* Bensted, 1 Campbell 463) where the owner of a stone quarry, by the necessary pumping of the water for the working of the pit, reduced the amount in a spring of water which supplied his neighbour's bath. As early in the trial Lord Ellenborough laid it down as law, that the only question to be determined was whether the supply of water to the bath had been diminished by pumping the water out of the stone quarry, the defendant declined to proceed with the trial; and so the right to enjoy another man's underground water was in this case apparently supported.

It may reasonably be believed that this *nisi prius* decision of Lord Ellenborough would hardly have met with the concurrence of a full court. Subsequent decisions seem to confirm this conclusion.

Thus, in 1843 the Court of Exchequer decided in a very considerable case (Acton *v.* Blundell, 12 M. and W., 324), that the owner of land through which water flows in a subterraneous course has no right or interest in it which will enable him to maintain an action against a landowner, who, in carrying on mining operations on his own land in the usual manner, drains away the water from the land of the well-owner and lays his well dry. In this case the Court remarked, in giving their judgment: "The ground and origin of the law which governs streams running in their natural course would seem to be this: That the right enjoyed by the several proprietors of the lands over which they flow is, and always has been, public and notorious: that the enjoyment has been long continued—in ordinary cases, indeed, time out of mind—and uninterrupted; each man knowing what he receives and what has always been received from the higher lands, and what he transmits, and what has always been transmitted to the lower. But in the case of a well sunk by a proprietor in his own land, the water which feeds it from a neighbouring soil does not flow openly in the sight of the neighbouring proprietor, but through the hidden veins of the earth beneath its surface. No man can tell what changes these underground sources have undergone in the process of time: it may well be that it is only yesterday's date that they first took the course and direction which enabled them to supply the well. Again, no proprietor knows what portion of water is taken from beneath his own soil—how much he gives originally, or how much he transmits only, or how much he receives; on the contrary, until the well is sunk, and the water collected by draining into it, there cannot properly be said, with reference to the well, to be any flow of water at all."

It was in 1852 that the barons of the Court of Exchequer, by an unhappy decision of the case Dickenson *v.* the Grand Junction Canal Company (7 Exchequer, 302), brought the confusion, first introduced by Lord Ellenborough in Balston *v.* Bensted, with regard to underground water, to the climax. In this case, the Grand Junction Canal Company having dug a well on their own ground, at Cowroost, in Hertfordshire, intercepted and pumped from thence into their canal certain waters which might or would otherwise have risen to the surface and flowed into a mill-stream. The Court decided that this was illegal.

In 1855, however, the Court of Exchequer, in the case of Rawston *v.* Taylor (25 L. J. R. Exc. 33), began to perceive that the principle laid down by them three years previously, in Dickenson *v.* the Grand Junction Canal Company, was somewhat inconvenient and absurd. In this case, Taylor having some land containing wet springy spots, drained them in the ordinary way, diverting the water which formerly flowed, as best it might, into Rawston's mill reservoir in another direction. The Court decided that "he was justified in doing so;" or, in the words of Lord Wensleydale, 'there is no defined course for the water—it is merely casual; and the party is entitled to get rid of it for the purpose of cultivating his land."

It was this state of legal doubt, as to the right to underground water, that led to the great Croydon case of Chasemore *v.* Richards: Mr. Chasemore being the occupier of the ancient mill of

Waddon, on the river Wandle (which rises in Croydon), and Mr. Richards the secretary to the Croydon Board of Health; and who, by the direction of the Public Health Act, is the proper person to be made the defendant.

It is now several years since the Board of Health at Croydon purchased some land, dug in it a well, and, by means of Cornish steam-engines, raised the water from that well into an elevated reservoir, from which the inhabitants of the parish are copiously supplied with water. The sewage of the town, by other operations simultaneously carried on, was collected, and after being passed through some settling ponds and filter beds, conducted into the Wandle river. Here then, apparently, could be no special damage as regarded the loss of water-power, since the water raised from the well, and distributed through the water-mains to the inhabitants of Croydon, almost, if not entirely, found its way to the river through the sewers. But as the owners of the first and other mills on the stream objected to the river receiving the Croydon sewage, a question arose, whether the water pumped from the well might not *pro tanto* reduce the amount of water percolating through the soil, and eventually finding its way into the Wandle. And as the arbitrator (Mr. Creasy), to whom the case was referred, found that such was the case, this reduced the question, which was decided by the Court of Exchequer, next by the Exchequer Chamber, and finally by the House of Lords, into the simple question of whether the owner of land may or may not dispose of any underground water found in such land in any way he pleases.

I deem it, in this place, quite unnecessary to go into the detail of the progress of this great suit—a memorable case, which was on both sides conducted with great skill and zeal. All that it is necessary for the landowner to know is, that after a very able discussion at the bar of the House of Lords (Boville, Needham, and Raymond, for the mill-owners; Sir Fitzroy Kelly, Lush, and G. Miller, for the town of Croydon: Burgon, solicitor for the millers; Drummond's, Robinson, and Till, for the Croydon Board), a question was put by the peers to the judges. That question, and the memorable reply it produced, on the 11th of June, 1859, was as follows:—

The following judges were present: Mr. Justice Wightman, Mr. Justice Williams, Mr. Baron Martin, Mr. Justice Crompton, Mr. Baron Bramwell, and Mr. Baron Watson.

And the question being whether, under the circumstances stated in the printed case, the Croydon Local Board of Health are legally liable to the action of the appellant for the abstraction of the water in the manner described? Mr. Justice Wightman said: "My Lords, in this case the judges agree in opinion. I have, therefore, to deliver their unanimous opinion to your lordships. It appears by the facts that are found in this case, that the plaintiff is the occupier of an ancient mill on the river Wandle, and that for more than sixty years before the present action he and all the preceding occupiers of the mill used and enjoyed, as of right, the flow of the river for the purpose of working their mill. It also appears that the river Wandle is, and always has been supplied, above the plaintiff's mill, in part, by the water produced by the rainfall on a district of many thousand acres in extent, comprising the town of Croydon and its vicinity. The water of the rainfall sinks into the ground to various depths, and then flows and percolates through the strata to the river Wandle, part rising to the surface, and part finding its way underground in courses which continually vary. The Local Board of Health of Croydon (represented in this action by the defendant), for the purpose of supplying the town of Croydon with water, and for other sanitary purposes, sunk a well in their own land in the town of Croydon, and about a quarter of a mile from the river Wandle, and pumped up large quantities of water from their well for the supply of the town of Croydon; and by means of the well and the pumping the Local Board of Health did divert, abstract, and intercept underground water, but underground water only, that otherwise would have flowed and found its way into the river Wandle, and so to the plaintiff's mill; and the quantity so diverted, abstracted, and intercepted, was sufficient to be of sensible value towards the working of the plaintiff's mill.

"The question is, whether the plaintiff can maintain an action against the Local Board of Health for this diversion, abstraction, and interception of the underground water.

"The law respecting the right to water flowing in definite, visible channels, may be considered as pretty well settled by several modern decisions, and is very clearly enunciated in the judgment of the Court of Exchequer, in the case of Embery *v.* Owen (6 Exchequer Reports, 369). But the law, as laid down in those cases, is inapplicable to the case of subterranean water not flowing in any definite channel, nor indeed at all, in the ordinary sense, but percolating or oozing through the soil, more or less, according to the quantity of rain that may chance to fall.

"The inapplicability of the general law respecting rights to water to such a case has been recognised and observed upon by many judges whose opinions are of the greatest weight and authority.

"In the case of Rawstorne *v.* Taylor (11 Exchequer Reports, 382) Baron Parke, in delivering the judgment of the court, says, 'This is the case of common surface water flowing in no definite channel, though contributing to the supply of the plaintiff's mill. The waters having no definite course, and the supply not constant, the plaintiff is not entitled to it. The right to have a stream running in its natural direction does not depend upon a supposed grant, but is *jure naturæ*.'

"In delivering the judgment of the Court of Exchequer in the subsequent case of Broadbent *v.* Ramsbottom (11 Exchequer Reports, 615), Baron Alderson observes, that 'all the water falling from Heaven, and shed upon the surface of a hill, at the foot of which a brook runs, must by force of gravity find its way to the bottom, and so to the brook; but this does not prevent the owner of the land on which it falls from dealing with it as he pleases. He cannot do so if the water has arrived at and is flowing in some definite channel. There is here no watercourse at all.'

"In the earlier case of Acton *v.* Blundell (12 Messon and Welsby, 349), the Court of Exchequer were of opinion that the owner of the surface might apply subterranean water as he pleased, and that any inconvenience to his neighbour from so doing was *damnum abseque injuriâ,* and gave no ground of action.

"There is no case or authority, of which I am aware, that can be cited in support of the position contended for by the plaintiff, or in which the right to subterranean percolating water adverse to that of the owner of the soil came into question, except the *nisi prius* case of Balston *v.* Bensted (1 Campbell, 463), and Dickenson *v.* the Grand Junction Canal Company (7 Exchequer, 282).

"In the first of these cases, Lord Ellenborough is reported to have expressed an opinion that twenty years' enjoyment of the use of water in any manner afforded an exclusive presumption of right. This opinion amounted only to the dictum of an eminent judge, followed by no decision upon the point, for the case ended in the withdrawal of a juror, and is directly at variance with the judgment of the Court of Exchequer in the other case, upon which the plaintiff relies, of Dickenson *v.* the Grand Junction Canal Company, in which the court held 'that the right to have a stream running in its natural course is *not* by a presumed grant from long acquiescence on the part of the riparian proprietors above and below, but is *ex jure natur,æ* and an incident of property as much as the right to have the soil itself in its natural state unaltered by the acts of a neighbouring proprietor, who cannot dig so as to deprive it of the support of his land.'

"In the case of Dickenson *v.* the Grand Junction Canal Company, the very question now before your lordship's House arose, and that case is relied upon by the plaintiff as a decisive authority in his favour. The Court of Exchequer was of opinion that the Company, by digging a well and pumping out the water, and so intercepting and diverting underground and percolating water which would otherwise have gone into a stream which flowed to the plaintiff's mill, and was applied to the working of it, had rendered themselves liable to an action for the infringement of a right at common law. In the same judgment, however, the court refers to the case of Acton *v.* Blundell, apparently with approbation, and observes, 'that the existence and state of underground water is generally unknown before a well is made; and after it is made there is a difficulty in knowing certainly how much, if any, of the water of the well, when the ground was in its natural state, belonged to the owner in right of his property in the soil, and how much belonged to his neighbour;' and then further observes, 'that these practical uncertainties make it very reasonable not to apply the rules which regulate the enjoyment of streams and waters above ground to subterranean waters.' But the court, without at all adverting to this distinction which it has adopted, treats the case of underground percolating water as governed by the same rules as would obtain in the case of visible streams and watercourses above; and no remark or comment is made or reason assigned by the court for arriving at a conclusion which not only does not seem warranted by the premises previously adopted, but is in effect hardly consistent with them. The plaintiff in that case was held to have a cause of action, independently of any infringement of a right at common law, by reason of the breach of an agreement between the parties and of an act of parliament; and a decision upon the right at common law seems not to have been necessary for determining the suit between the parties. These considerations greatly weaken the effect of the case of Dickenson *v.* the Grand Junction Canal Company, as an authority against the defendant upon the point now in question, but it is an authority in his favour to show that a right to water is not by a presumed grant from long acquiescence, but, if it exists at all, is *jure naturæ,* and that the rules of law that regulate the rights of parties to the use of water are hardly, or rather not at all, applicable to the case of waters percolating underground.

"In such a case as the present, is any right derived from the use of the water of the river Wandle for upwards of twenty years for working the plaintiff's mill? Any such right against another, founded upon length of enjoyment, is supposed to have originated in some grant which is presumed from the owner of what is sometimes called the servient tenement. But what grant can be presumed in the case of percolating waters, depending upon the quantity of rain falling or the natural moisture of the soil, and in the absence of any visible means of knowing to what extent, if at all, the enjoyment of the plaintiff's mill would be affected by any water percolating in and out of the defendant's or any other land? The presumption of a grant only arises where the person against whom it is to be raised might have prevented the exercise of the subject of the presumed grant; but how could he prevent or stop the percolation of water? The Court of Exchequer, indeed, in the case of Dickenson *v.* the Grand Junction Canal Company, expressly repudiates the notion that such a right as that in question can be founded on a presumed grant, but declares that, with respect to running water, it is *jure naturæ.* If so, *à fortiori,* the right if it exists at all, in the case of subterranean water, is *jure naturæ,* and not by presumed grant, and the circumstance of the mill being ancient would in that case make no difference.

"The question then is, whether the plaintiff has such a right as he claims *jure naturæ* to prevent the defendant sinking a well in his own ground at a distance from the mill, and so absorbing the water percolating in and into his own ground beneath the surface, if such absorption has the effect of diminishing the quantity of water which would otherwise find its way into the river Wandle, and by such diminution affects the working of the plaintiff's mill.

"It is impossible to reconcile such a right with the natural and ordinary rights of landowners, or to fix any reasonable limits to the exercise of such a right.

"Such a right as that contended for by the plaintiff would interfere with, if not prevent, the draining of land by the owner. Suppose, as it was put at the bar in argument, a man sunk a well upon his own land, and the amount of percolating water which found its way into it had no sensible effect upon the quantity of water in the river which ran to the plaintiff's mill, no action would be maintainable; but if many landowners sunk wells upon their own lands, and thereby absorbed so much of the percolating water, by the united effect of all the wells, as would sensibly and injuriously diminish the quantity of water in the river, though no one well alone would have that effect, could an action be maintained against any one of them, and if any, which, for it is clear that no action could be maintained against them jointly?

"In the course of your argument one of your lordships (Lord Brougham) adverted to the French artesian well at the Abattoir de Grenelle, which was said to draw part of its supplies from a distance of forty miles, but underground, and, as far as is known, from percolating water. In the present case the water which finds its way into the defendant's well is drained from and percolates through an extensive district, but it is impossible to say how much from any part. If the rain which has fallen may not be intercepted whilst it is merely percolating through the soil, no man could safely collect the rain-water as it fell into a pond; nor would he have a right to intercept its fall before it reached the ground, by extensive roofing, from which it might be conveyed to tanks, to the sensible diminution of water which had, before the erection of such impediments, reached the ground, and flowed to the plaintiff's mill. In the present case the defendant's well is only a quarter of a mile from the river Wandle; but the question would have been the same if the distance had been ten, or twenty, or more miles distant, provided the effect had been to prevent underground percolating water from finding its way into the river, and increasing its quantity, to the detriment of the plaintiff's mill. Such a right as that claimed by the plaintiff is so indefinite and unlimited that, unsupported as it is by any weight of authority, we do not think that it can be well founded, or that the present action is maintainable; and we therefore answer your lordship's question in the negative."

The judgment of the House of Lords was given July 27, 1859, when the peers, before whom the appeal had been heard, severally delivered their opinions in favour of the defendant, Richards, the secretary to the Croydon Board of Health.

Lord Chelmsford commenced by saying, that "The question in this case is whether the plaintiff is entitled to claim against the defendant the right to have the benefit of the rain-water which falls upon a district of many thousand acres in extent, and percolates through the strata of earth to the river Wandle, increasing the supply of water in the river, and being of sensible value in and towards the working of an ancient mill belonging to the plaintiff. The acts of the defendants, by which the underground water was intercepted and prevented from finding its way into the river, were done upon their own land." And then having proceeded to examine and comment upon the various leading cases, to some of which I have already referred, he observed, in conclusion: "It appears to me that reason and principle, as well as authority, are opposed to the claim of the plaintiff."

Lord Cranworth briefly described the law as applicable to running and underground waters. He remarked: "The right tō running-water has always been properly described as a natural right, just like the right to the air we breathe. They are the gifts of nature, and no one has a right to appropriate them. There is no difficulty in enforcing that right, because running-water is something visible, and no one can interrupt it without knowing whether he does or does not do injury to those who are above or below him. But if the doctrine were applied to water merely percolating, as it is said, through the soil, and eventually reaching some stream, it would be always a matter that would require the evidence of scientific men to state whether or not there has been interruption, or whether or not there has been injury. It is a process of nature not apparent, and therefore such percolating water has not received the protection which water running in a natural channel on the surface has always received. If the argument of the plaintiff were adopted, the consequence would be, that every well that ever was sunk would have given rise, or might give rise, to an action.

"It is said that in this case this is not a well sunk by a particular individual for his own purposes, but a great well which has been sunk, and by which water is raised to a very enormous extent for supplying the whole town of Croydon. That argument does not affect my mind at all, because if it be conceded, as I think it must be conceded, that each and every one of the individuals, residing upon the area, might have sunk a well of his own to supply himself, it seems to me to be exactly the same thing, whether the water is abstracted by one large well which supplies the whole community, or by a thousand small wells, by which each individual of the community supplies himself. In truth, I should think that in all probability the loss of water would be much greater by each individual sinking a well, than by one great well being sunk for the supply of the whole community."

Lord Wensleydale, although he concurred in the judgment of the other peers, yet at some length stated his reasons for wishing that the case might have still undergone further discussion, as so many difficulties presented themselves to his mind on both sides of the question.

Lord Kingsdown expressed his inability to share the doubts expressed by Lord Wensleydale. "I entirely concur," he said, "in the opinion that has been given by the judges unanimously in this case, and for the reasons by which the judgment has been supported; and I think the House is greatly indebted to those learned persons for the admirable reasonings by which they appear to have removed all doubt upon one of the most important questions that ever came under the consideration of a court of justice."

Lord Chelmsford added, in declaring the judgment of the Court of Exchequer Chamber to be affirmed with costs, that Lord Brougham "entirely concurs in the opinion I have expressed."

The important points which have, by this great decision of the House of Lords, been finally settled, so far as the landowner is concerned, are: 1, that the underground water in the land belongs to the owner of the ground; 2, that he may drain that water, or pump that water out of his land in any direction that he finds the best for its cultivation or enjoyment.

I feel that this decision will indeed lead to considerable improvements in the drainage, the better cultivation, and the improved health of the country; and, at the same time, I believe that by the exercise of only a little good feeling, by neighbours giving credit to each other for being actuated only by just motives, by avoiding all overbearing demeanour, and disregard of the feelings and the fair interests of others, all these national improvements may be so carried out, as authorised by the decision in Chasemore *v.* Richards, that no right may be violated; no improvements in drainage or water supply stayed; no honest millers or canal owner's property deteriorated in value.

THE HORSES AT HULL.

(FROM A CORRESPONDENT.)

The horse in Yorkshire holds the same place as the pig in Ireland: popular affection swells round it. No worshipper, indeed, on the banks of the Nile could pay a more circumspect regard to the idolized alligator than the Yorkshireman to his horse. This devotion is well merited, and fully repaid. All who have to ride a good hack, or drive twelve or fourteen miles an hour, in other portions of Her Majesty's dominions, hold in particular respect the memory of their northern brethren.

Old and young seem to be possessed by this passion. No topic of conversation is so full; and when all others are exhausted, this is fresh as ever. Every man has his favourites, whose memoirs are common property, and, like the traditions of early times, before the pen of the chronicler had transmitted them in the imperishable pages of history, the achievements on the race-course, upon the hunting field, or the road, with long lines of descent, and noted ancestry, are orally passed down from father to son, and by being constantly reiterated and dwelt upon in public and private assembly, the facts become indelible, and the tendency hereditary. The talented author of *Silk and Scarlet,* just published, has evidently been desirous to give these histories "a local habitation and a name" that shall extend beyond the Humber. So pleasant and easy is his narrative, that no doubt can be entertained as to its speedy circulation.

Had we never known before what the Yorkshire breeders had accomplished, we certainly had a full opportunity of seeing at Hull, for the show was nearly entirely composed of classes of roadsters, hacks, and hunters. We find 211 entries, 37 of which are for agricultural purposes only. At Warwick the balance was very much on the side of "agricultural purpose" horses. They were as 134 to 72 of the hunting and roadster class.

When we compare the 211 horses at Hull with the 206 at Warwick, we are led to conjecture the reason for the disparity. It cannot have been the prize money, for there were only £148 given away amongst exhibitors of horses at Hull; while amongst the same gentlemen at Warwick were distributed £430. A Yorkshireman seems to have an intuitive liking for a horse. Every stripling is wonderfully knowing in this matter of horseflesh—cares not, indeed, to withhold his opinion; affects a lightness about the lower portion of his trowser legs; fastens his scarf with a jockey cap and whip, a pair of spurs, a galloping horse, a fox's head, or a horse-shoe.

The breeding of horses is the particular hobby of a Yorkshireman; and we are assured that the local shows are, many of them, as large and as good as the country show.

Amongst the stallions for getting hunters we found some very superior animals. All that were exhibited came truly under the class, and were not, as so frequently we have had reason to remark in other shows, foreign to it. Elcott, by Venison, a bay ten-years-old horse, showed some breeding, but scarcely so much to our mind as Spencer, by Cotherstone, a bay horse, seven years old, with those indications of endurance which in this class are everything. Both these animals, however, were sure to arrest attention by their splendid legs, strengthy hocks, and beautiful tops—all finely proportioned.

Wild Hero, by Young Priam, a five years old bay, well deserved the high commendation which he obtained, having wonderful quarters, fine arms and second thighs, straight flat legs and good feet.

As we have always been of opinion that the Cleveland with two strains of blood were the best foundation from which to obtain size, weight, endurance, and speed, we somewhat demurred to some animals in the class for coaching stallions. The first prize, awarded to a bay horse by Hero, and the second, to Omar Pacha, by Tamor, were well given on the whole. The judges evidently shared our feelings when looking over this class, for they did not give any commendation. The roadster stallion class was well represented: President, jun., by Bay President, a tight, smart bay, four years old, won the first prize well, and Young Wildfire, by Troubadour, a three years old chesnut roan, the second: President, junior was marked by very muscular arms and quarters, with a well-proportioned top. Sir Colin, a brown, five years old, by Prickwillow, highly commended; and Merry Driver, a seven years old horse, by Pretender, presented better points to the judges than we could find perhaps; for the judges, be it remembered, always have a great advantage over the public, in that they see the animals in motion; and when everything depends upon pace, form has generally become a secondary consideration. Those who judge of them in their quiescence, must merely confirm the justice of the awards, keeping his own particular predilections in the background. Still, it did occur to us that Achilles, a roan five-year-old by Fireaway, and Magnet by Wildfire, merited more notice than they received. The former might well have been the subject of that anecdote which occurs in the life of Sir E. Buxton. Riding, as was his custom, a very splendid hackney in the Park, it attracted the notice of King George IV., who sent a gentleman attendant to enquire its price. Sir Edward, on hearing the message, dismissed the attendant to the king with his card, and the reply that the card bore upon it the name of a gentleman as fond of a good horse as was His Majesty.

No doubt could have been entertained by any with regard to the first award in the class for stallions for agricultural purposes. Taylor's England's Glory, a brown eight years old horse, stands as renowned in his own right as he does in that of his sire, England's Glory, who received the first All England prize, at Windsor, in 1851. At the close of a heavy season he seems fresh as ever, and means well, notwithstanding his prodigious weight. His girth and quarters, arms and thighs are very remarkable. He presents a good type to carry in one's eye, by which to measure other horses. By this measure the eleven compeers in this class were but small—some exceedingly small. Champion, the second prize, owned a very compact and strong, if not a particularly handsome mould; but we were struck with Black Douglas, a very superior style of horse, with evident signs of blood.

Amongst the mares and foals for hunting, the prize mare, Marigold, was particularly remarkable for symmetrical outline and great girth. We thought them all undersized however, especially 305. Spangle was characterized by fine fore legs; and Wallflower by beautiful fashion. 310 was a fine roomy mare, but too short. 312 had substance and room, splendid shoulder, forehand good, and foal capital.

The coaching mares and foals were very unequal. Mr. Todd's by Broby stood first, a first-class five years old mare, of surprising substance. Our attention was also caught by Mr. Bowser's mare: she must breed well, though the foal with her was not a good specimen. There was more fashion about her than any in the class; hocks very strong; great reach of quarters; sound constitution, denoted by a glance at her chest. Mr. Wilson and Mr. Train both showed excellent animals. Nor must Mr. Dennis be forgotten, an unusually long top, and splendid legs.

The prize mare in the class for roadster mares and foals wanted fashion; but her quarters were splendid. Mr. Bowser's black mare, with remarkably fine flat-boned legs, good top, and shoulders well back, deserved commendation; as did Mr. Tindall's; but the beautiful compact, smart mould of a chesnut mare by Merrylegs (327) specially attracted attention: her symmetry seemed perfect. Merrylegs should get good action; what her's might be we had no opportunity of judging. Of mares and foals for agricultural purposes there were but two specimens—a fine black mare, with very creditable foal, winning the prize.

The character of the two classes for three years old geldings and fillies, for hunting purposes, was very superior. We have scarcely ever seen so much strength and style. For those properties that are looked for on the field, Mr. Walker's prize dark brown by Young Melbourne was very remarkable. She looked up to any weight, and well calculated to live with hounds through any day; and if a well knit frame, a long, deep girth, and well-placed and sinewed legs, do mark a horse for his business, we have a true hunter in Cheerful, by Young Physician. If his sire got many such as him, he certainly won his diploma most creditably: his hocks were the best in the class. Mr. Gofton and Mr. Shaw both showed animals that supported the reputation Yorkshire has gained for size and quality, the latter being 16 hands 3 inches. Messrs. Harrison, the only exhibitors of fillies, could only have been more proud of their position had there been more competitors in the class.

We had the good chance to see Mr. Robinson's six years old chesnut hackney in the ring. The sire, Performer, had not his name for nothing. An easy carriage, free as the air, joints blithe and subtle, mouth tender, fore feet thrown in trotting, well out, with a foot that scarcely touched the sod, hind legs gathered well under for propulsion, loin capital; in size not great, but of mould remarkably beautiful. The first prize was well awarded here. The class for four years old hunter geldings or mares was extremely well filled. Besides those distinguished by awards, we noticed Rory O'More, Epicure, and Mr. Holmes's bay.

Lord Hotham's silver cup was awarded to Mr. E. R. Harrison, to whom, with his brother, Mr. C. Harrison, the show owed much of its sterling character and interest. Splendid as was President, and well furnished in all respects which indicate speed, power, and constitution, the latter gentleman's bay mare, by Theon, furnished, if anything, a superior type. We do not remember a more perfect picture in the yard, or one that bore better a critical examination, point by point. She stood a good 16 hands. Phœnix, by Young Priam, is also a remarkable horse; he stands 15 hands 1 inch.

Such shows as these are the great means by which the breed of horses will be improved: they afford the best possible stimulus and guarantee to breeders. The public eye becomes educated, and so educated, that a good horse will always fetch a remunerative price. Farmers will give up breeding £20, £30, and £40 nags, at a great loss; and we should advise all those who do not possess a real taste for the pursuit, to do so immediately, giving their attention to the Agricultural Purpose class, which are born to profit, and so leave the field open to men who can occupy it to their own profit and credit.

MR. RAREY AT THE ALHAMBRA.

"Quot homines, tot sententiæ."

What! never seen Rarey?

So one Saturday, like the dandy who went down in the coal-pit, not that he cared much about it, but merely to say he had been there, we and a great many more found ourselves, about a quarter past twelve, seated in the Alhambra.

The Palace, with the clean straw nicely arranged in the circus, a capital light, a very good audience, not in mourning, as in the evening, but in morning costume, of all colours of the rainbow, with a fair sprinkling of crinoline, and the circus free from all unpleasant odours—which most theatres are not, in the day time, especially where equestrian performances take place—was quite an agreeable surprise.

Mr. Rarey entered the arena, bowed, and said, "He wished to make a few observations, relative to a report of one of his pupils, Cruiser, having worried a man. The fact was, the groom was exercising Cruiser; and some horses he was going to practise on in an adjoining stable '*excited*' the horse, and Cruiser certainly did give the groom a severe bite in the arm; horses generally bite pretty hard. They must recollect this was the first accident he had had, and he had been now nearly two years among them; and that Cruiser was allowed to be one of the most vicious horses ever known. He must say that he thought the press had been rather hard on him in making so much of the accident, considering four or five patients were lying at the same hospital, suffering from injuries received from vicious horses, and yet some of the press stated that vicious horses were so scarce in this country that he could not get any to perform on. He did not pretend that he could teach every one his system, for it required nerve, and, like everything else, practice; and even with all the practice in the world, some would never succeed, &c., &c."

Cruiser was then introduced, looking "blooming."

Mr. Rarey informed the company he had only two interviews with Cruiser, since the accident. He then put the horse through the same process—but with much more ease and confidence—as the groom was wont to do every evening at the Alhambra for some months ago—lying down, following, standing still, and advancing when told, &c. While Cruiser was down, and Mr. Rarey was rapping the horse's hind heels together, there was a look about the eye of Crusier—such a look—with a handful of straw between his nippers, clenched as if in a vice, that put us in mind of Van Amburgh and the tiger—so tame.

Then came a half-bred mare, that did not show anything like vice, went through the business of going-down, heels rapped, drum, &c.; Mr. Rarey repeating parts from his book.

The next subject was a black Galloway, a "model undertaker"—such a mane and tail, with his head reined up so tight, that he had as much liberty with it, as one of his master's men would with the addition of an all-rounder to his white choker. We understood Mr. Rarey to say he had never seen the gentleman in black before; that the horse was quite master pig at home, and had never been ridden. We noticed Mr. Rarey did not appeal to our sable friend's frontispiece, like he did to the half-bred mare, and as you are instructed in the book, but touched him in a playful manner in the flank, when the brute squeaked, but did not offer to kick, bite, or fight with his fore legs. After several squeaks, Mr. Rarey produced the straps, and a regular set-to commenced, which lasted with the second round (for the plucky undertaker got up again, after being fairly thrown), quite half-an-hour. Mr. Rarey, during a slight cessation of hostilities informed the audience he had three hours with Cruiser the first time he got him down, which seemed to alarm a few ladies and gentlemen in our quarter. The undertaker eventually cried Peccavi, in a perfect lather, and both man and horse blowing as if they had had a four-miler. Mr. Rarey feeling, we should say, pretty much like Napoleon after defeating the Austrians, as if he did'nt care about such another job, at least for the day. When rapping this horse's heels together, he lashed out viciously three or four times; but with all his vice, some son of Vulcan had managed to nail on a pretty good pair of hind shoes. The horse appeared afterwards to walk very stiff, and trembling with the near fore leg; there was a curious action about the knee and fetlock. We formance lasted about an hour and three-quarters. fancied Cruiser's knee was stightly enlarged. The per-

Mr. Rarey is decidedly a very clever cool hand with horses, and for once is worth seeing. As to his system, we don't believe in it. We all know what a mess the gentleman, who was cured of stammering made of "Tha-a-a-at's the ch-a-a-ap th-a-a-at c-u-u-u-red me, when he got "*excited*," on hearing some one mention the doctor's name in the next box. We all know how a great many ticket-of-leave-men, when they get out of the Reformatory, and have half a chance, get "*excited*," and are up to their old tricks again. We all know that dogs, confirmed sheep worriers, directly they are out of sight, get "*excited*" and are after the mutton as usual.

It's the same with Mr. Rarey's system, and we seriously advise "all friends, and the public in general"—as the advertisers say when thanking imaginary customers—if they should have anything to do with these said to-be-tamed animals, to keep their eye on the main chance; always be on their guard. By such means only will they be likely to prevent horses like Cruiser and the Cretingham Hero from adding more to their list of killed and wounded.

The only difference we saw between Mr. Rarey's and Mr. Cooke's system, was, that Mr. Rarey brings the strap of the off fore leg under the horse through the roller by the girth place, and pulls upwards on the near side. Mr. Cooke brings the strap of the off fore leg through the roller over the back, and pulls downwards on the near side.

SCARCITY OF LABOURERS.

An event which we have for some years foreseen and against which many farmers have been making preparation, has this season happened. It has, of course, taken by surprise those who were less provident or observant, and is likely to cause them not only considerable inconvenience, but great loss. We refer to the scarcity of labourers, which is felt this season to such an extent in some districts that, unless hands are obtained, it will be impossible in any reasonable time, to get in the crops, that are already dead ripe, and require immediate cutting. The tangled condition of the corn, from the effects of the late storms, greatly aggravates the evil, by retarding the work of the reapers, even where there are enough of them, whilst it both increases the expense and lessens the produce. To add to the general perplexity, the usual supply of Irish labourers has this season entirely ceased; the improvement of agriculture, the increased quantity of land cultivated, and the extensive emigration which still continues, having created a demand for labour in that country to the full extent of the supply. This failure of the accustomed immigration from Ireland is severely felt in the midland and northern districts, where the farmers have, to a certain extent, depended upon it for help in their harvest-work, particularly in reaping.

The consequence of this scarcity is that in some places the labourers have struck for higher wages, and enormous prices have been given for reaping. We have heard of instances, a few miles from the metropolis, where as much as 25s. and 30s., and in one case even 40s. per acre have been already paid, where the corn was much laid. In Lincolnshire the scarcity of labour is so severely felt that proposals have been made that some of the builders now on strike should go down and assist in the harvest, with an offer of 7s. 6d. per day. The corn there is quite ready, and any further delay in cutting it will be attended with great loss. Every day adds to the mischief, and increases the difficulty of dealing with it.

It does not admit of a doubt that harvest-work in this country is becoming increasingly heavy every year, in consequence of the high state of cultivation to which the land has arrived. This new phase in the existing state of things directs the farmer unmistakeably to the only course that will afford a remedy for the evil, namely, an increased employment of machinery in the operations of husbandry and especially those of harvest work. We shall, therefore, expect that before another season there will be few farmers who are not provided with one or more of Burgess and Key's mowers and reapers, according to the size of their farms. What would not the Lincolnshire men, for instance, give for a reaper at the present time? Yet they might, with a little reflection, have foreseen and prevented the dilemma in which they are placed, by furnishing themselves with those grand auxiliaries.

Our observations, however, if they have been suggested by the state of the harvest and of the labour market, apply almost equally to our agriculture, in all its branches and at all seasons of the year. High farming and increased flocks and herds call for more attention and more labourers, and will soon necessitate the still greater extended use of machinery. And not only this, but there is an increased and increasing demand for labour in every other department of industry as well as in agriculture, as may be judged from the enormous augmentation in the exports and imports of the first six months of the present year. It appears that the exports have amounted to *sixty-three millions*, and the imports exhibited a corresponding addition. Ten or fifteen years ago the whole of the exports for the year amounted to only fifty millions, and now the export of cotton goods alone amounts to forty millions, and the yearly exports to 126 millions. It is evident that so enormous an increase in our trade, both at home and abroad, must employ a corresponding number of hands to conduct it, besides those employed in the manufactories, the shipping, &c. Then there is the increase of men engaged on railways, in the dockyards, in the army, and the navy. All these additional hands must be drawn from the rural districts, and when added to the many who have emigrated, will fully account for the present deficiency.

The farmers must not suppose that the difficulty they now suffer under is temporary, and that things will ever revert to their former channel in regard to the supply of labour. We do not hesitate to affirm *that* is an impossibility arising out of the new conditions in which agriculture is now placed. She has been the last to feel it, because she has been in the rear of every other in the race of improvement. In commerce and manufactures they have been long ago driven to the use of machinery by the shear want of sufficient hands to conduct their operations; and now the agriculturists' turn is come, and there can be no safe hesitation about what is to be done, if they intend to have their land cultivated in a proper manner and their crops housed in proper time. Machinery is the only remedy—the only resource in this emergency, and the sooner it is universally adopted the better for both master and man.

We regret to hear that some of the latter are endeavouring to get the upper hand by imitating the associations in other branches of industry, in "striking" for higher wages. We are quite aware that in many districts the general rate of wages are lower than we could wish. This state of things cannot much longer exist, and whilst we would hope the farmers will secure the good will of their men by a more liberal remuneration, and a more kindly consideration of their condition and wants, we would, on the other hand, counsel the latter to await patiently the course of events, which will assuredly place them ere long in a better condition, and on a par with the operatives in other employments.

Let the labourer not suppose, either, that he can effectually resist the introduction of machinery. We have heard with considerable surprise of a district in a midland county, in which no farmer has yet been permitted by the labourers to purchase a thrashing machine, and the employers have been foolish enough to yield to the intimidation. This is but a renewal of the old struggle between the hand-loom weavers and the steam-power looms. We should like to see the operative manufacturer who would wish to return to the old system again. And thus will it be—thus we may say *it is*, with the agricultural labourers. Where machinery has been generally introduced upon the farm, there the men are the best satisfied with it because they find that it is beneficial to them, both in a physical and a pecuniary point of view, and still more morally and intellectually. We were told recently of a farmer who used machinery in every kind of work in which it could be introduced, who was requested by a gentleman to send him a man who knew something of a steam engine. He sent him one of his common labourers, who had taken his turn with others in the management of his employer's steam machinery. He received a letter from his friend some days after, requesting that he would allow him to engage with the man permanently, for he found him so useful and intelligent that he would willingly give him a pound a week wages. We offer this instance of the importance of machinery to the labourers as well as to the farmer, to show that the former resist their own advancement in life by setting their faces against its use.

THE PROGRESS OF THE HARVEST AND ITS PROBABLE RESULTS.

The onward progress of the harvest, slow though it has been, on account of the scarcity of hands in many districts, is beginning to foreshadow its probable influence upon the markets of the coming season. At present, however, enough has not been developed of the condition of the crops to enable the merchant and the miller to form a sound judgment of the result. At the same time, the accounts from various districts give anything but a favourable view of the yield of the wheat crop. In some districts there is an undoubtedly full average, but in others a premature ripeness has injured the quality and reduced the quantity of the grain. This effect has been aggravated by the heavy storms, which in various parts of the country have inflicted great damage upon all the crops, and injured both quality and yield. It is estimated by many good judges that the weight of the wheat this season will average at least from 3 to 4lbs. per bushel less than last year, which will make a difference *in flour* of from 35 to 45lbs. per qr. This will amount, in round numbers, to at least two million sacks of flour, taking the average produce at 16 million quarters, which, even if we get an average, will materially reduce the supply, and give the miller more work and less profit. On the other hand, it is universally acknowledged that the farmers throughout the country hold the largest stock of old wheat they have had at this season for ten years: so that this will fully compensate for whatever deficiency may be found in the weight of flour per quarter. We have also a large stock of foreign wheat on hand, both in London and at the outports, that will still further help to make up any requirements.

In France the case is different. The crops in the south have been housed, and are reported to exhibit a large deficiency in the acreage yield. It is estimated that upon the entire crop of wheat in that country there will be one-fourth less than an average; so that it is not considered there will be much to spare for exportation. It is probable, however, that the French millers will still ship flour to England, when they can do it at a profit, even with the chance of having to fetch it back again at an advanced price afterwards. There is also in France, as here, a large stock of old wheat in the hands of the farmers of Normandy and Brittany, whilst supplies from the Black Sea can be readily obtained, when the price and the sliding-scale will allow. At the commencement of the harvest there was a considerable advance in price in most of the French markets; but a reaction has since taken place, although the trade still continues firm, and it is not likely that prices will recede.

The crops of spring corn in this country are reported better than was expected, with the exception of those on the very light lands, where the drought and heat have prematurely ripened them. On the strong and mixed soils the barley is good, and the oats a heavy crop. On the other hand, in Ireland, especially in the southern parts, the oats are more or less a failure, from the excessive drought, which was much more severe and lasting than in England. In many fields the oats, *in full ear*, are not more than four inches high. The potatoes also have suffered severely, and will be very small in size. A very large breadth, however, was planted, and there will still be a good supply. In England the disease has appeared in many districts, and some fields have been ploughed up, the crop not being otherwise worth raising. The winter beans are likely to turn out well, but the spring-sown will be nearly a failure. The harvest has been somewhat retarded by the rains that have fallen, but the damage has been confined to the sprouting of a few fields of barley, and this will have but little effect upon the general yield.

The harvest in the United States does not turn out quite so abundant as was expected. Some samples of new wheat that have been received from thence do not display the usually high quality. At any rate, whatever may be their produce of wheat, it is not likely that our prices will be low enough to enable their merchants to ship to this country at a profit. In Canada West the wheat crop is larger and more productive than ever was known; and although on the older cultivated soils the weevil and midge fly have committed their customary ravages, the new lands in the "far west" yield an unusual abundance—say from twenty-eight to thirty-five bushels to the acre. So there will be a considerable surplus to spare, if the price in Europe will allow it to be shipped to a profit, which, however, is doubtful.

In the North of Europe, the crops are not reported to be so good as usual, especially rye, which is advancing in price, there being on hand large orders from Holland and Belgium for that grain. The wheat trade at Hamburg is heavy, taking the tone from Mark Lane, but the stocks of old corn are not large.

Upon the whole, it is probable that, with a good supply of both old and new native wheat, and a heavy stock of foreign in the market, we shall not see much fluctuation in price on this side of Christmas. By then the produce of the harvest will be more accurately known, and the farmers will be better able to form their opinions of the future prospect. This will apply to spring corn as well as wheat, for the delivery of good malting barley will probably be large, whilst of inferior qualities there is stock on hand, with a prospect of a considerable importation. Of oats, too, the importations from Russia, &c., have for some weeks been very heavy, nearly 150,000 qrs. having been already received at the port of London during the past three weeks. What the import will be when the new crop of Northern Europe comes in, it is too soon to calculate; but if that of Northern Russia is equal to last year's, we shall certainly have a large accession. The growth of oats, however, in this country is usually confined to the requirements of the farmers' own consumption, other grain generally paying better. The general demand, too, for oats is always large, and any deficiency in the foreign supply would inevitably raise the price, as that from Ireland will be much less than usual. It is highly probable that the failure of the rye crop in Northern Europe will render a larger consumption of oats necessary, very little wheaten bread being eaten in the Baltic provinces and states.

In Northern Italy, the late war, having made some havoc with the growing crops, there will be a greatly increased demand for bread corn in that quarter. They will, however, be able to obtain supplies from Trieste, or from the Black Sea, if the crop of Southern Europe is deficient. Austria seldom grows much beyond her own consumption, anh has no other water outlet than Trieste and the Danube, whilst the absence of roads, railways, and canals render it impossible to get the grain to a profitable market, either to the interior German states, or seaward.

A FARM OF FOUR ACRES.

Playing at farming is, proverbially, an expensive amusement. There are people who to this day shake their heads over Tiptree, and doubt very much whether it really can pay. There are others of the worthy Alderman's compeers who honestly confess that it does not, and who annually debit so much to the farm, just as they would for a stud of hunters at Tring, a yacht at Erith, or a manor in Sussex. It is more or less a luxury. It is an agreeable occupation, no doubt; conducive to health, exercise, and so on. But the amateur must be a very sanguine man when he expects to actually make anything by it. In fact, the old story is all the other way. He is laughed at and robbed by the country-men. He eats bread of his own baking, and drinks beer of his own brewing, at about double the cost for which he might buy it. He has a famous litter of pigs, yet more in-famous for their continual invasion of the flower-garden. He has prize poultry, warranted good layers, but whose eggs, somehow or other, can never be "found." His hay-ricks are sure to be heated. There is invariably something wrong with the implements just when they are most wanted. The very Suffolks are jibbers. The Southdowns have got the foot-rot; and the shorthorn cow is hardly ever in milk, and never really in calf.

Of course the more limited the occupation, the greater, proportionately, is the outlay. Indeed, one of the "principles" of these times is that, of all the errors of our system, there is none worse than that of small farms. The merest tyro even had better go boldly into the business. He will be, so, compelled to engage a good foreman, who may gradually initiate his master in the mysteries of the art. It is only when citizen Cincinnatus is his own manager that he is thoroughly at the mercy of the elements and the natives. With, then, all such foreshadowings of failure, the new-comer is too often content enough with his kitchen-garden and his strawberry-beds. He gladly covenants with a neighbour for the tenancy of the bit of land, buys his saddle of mutton as usual of Tucker in the Strand, has his table-ale from the Romford Brewery as before, and scarcely knows of anything more home-made than the ginger-wine he gets at the grocer's, or the household-bread he buys in the City.

And yet, in the face of all this, the charms of a pastoral life are still very perseveringly put before us. Although Miss Mitford and "Our Village" may have lost something of their zest and interest, the argument has by no means died out. In truth, those who have since taken it up have only been the more earnest in the lesson they would teach. We learn it no longer inferentially, but are told methodically enough how to set about the curious art of Agriculture. During this very year of 'fifty-nine Mr. Alderman Mechi, under the countenance of the great publishing house of

Routledge, tells us "how to farm profitably," for two shillings. Not to be out-done, the yet more famous firm of Longmans introduce another well-known amateur, Mr. Lawrence, of Cirencester, with "A Handy Book for Young Farmers." And for a third, Messrs. Chapman and Hall announce, "Our Farm of Four Acres, and the Money we made by it."

It is noticeable that, so far, the last-named of these three handy books is by far the most popular of them all. The "Farm of Four Acres" is being continually out of print; for it has already, in a very short period, run through no less than six editions. More remarkable still perhaps, it is the work of a lady's pen; and, most wonderful of all, the book is really what it professes to be. Despite the conventional saws we have all treasured up so religiously—of the pleasures of eating your own pork at half-a-crown a pound, and drinking fresh milk at a shilling a quart—in the very face of so manifest an absurdity as attempting to make three or four acres of land pay for cultivation, it has yet been done. That this has been accomplished under peculiar circumstances, we are quite willing to allow. That the great secret of "minding your own business" might not be quite so practicable to all others, is equally apparent. But it is still a very charming book. And more than this, it is a very useful one—of value to many far beyond the mere circle of amateurs for whom it was especially written.

The production, as we have said, of a lady, it is more especially, perhaps, addressed to the sex. It is, moreover, the work of one who has been almost entirely self-taught. But our farmers' wives, even, need not be above studying it, for all that. It treats almost altogether of those minor matters in which "the missis" is chiefly interested. And there are good homesteads yet, within our knowledge, where the bread is apt to be sour, the beer hard, and where the butter won't "come." What a terrible business of itself is that of the dairy, and what continual care and attention it requires! Who does not remember when poor Jenny, who had got leave to go into town in the afternoon, fairly broke down after four hours' churning, and gave up her holiday, with the butter, in "a good cry"? People tell you there is no such want at this very time as a good dairy-woman. They are really not to be had. It is amusing and suggestive to see how our fair friend of the Four-acre Farm got over the difficulty. She did it herself. Indeed this very practical plan promises to come fast into fashion. It is the one great point in the money made off the four acres, while here is an instance of its yet further application:—

> "A friend of the writer's, a lady of large fortune, and mistress of a very handsome establishment, said, when speaking of her dairy, 'My neighbourhood has the character of making very bad butter; mine is invariably good; and I always get a penny a pound more for it at the 'shop' than my neighbours. If I have occasion to change the dairy-maid, and the new one sends me up bad butter, I tell her of it. If it occurs the second time, I make no more complaints; I go down the next butter-day, and make it entirely myself, having her at my side the whole time. I never find I have to complain again. She sees how it is made, and she is compelled to own it is good. I believe that a servant who is worth keeping will follow any directions, and take any amount of trouble, rather than see 'missus' a second time enter the kitchen or dairy to do her work.'"

Let us briefly enumerate the successful experiments tried on this now-famous farm of four acres. There were, then, two cows kept, and butter made—pigs fattened, and bacon cured—poultry and pigeons reared—bread made—a kitchen garden famously managed and provided—and a pony, a wonder in condition to look on, and, to carry out the character, of course a very marvel of an animal to go. There have been, so far, only two positive failures or losses in the whole business. The one was in the culture of grapes, which, however well they grew, did not pay for forcing. The other more decided break-down was the attempt to keep tame rabbits—about the very nastiest things to be had about a house, and that we were really glad to see would not live at the Four-acre Farm.

We hold this little book to be susceptible of a far greater effect than was probably ever intended. The whole story is quite admirable, if only for the manner in which it is told. But, beyond this, it may teach most of us many a useful lesson. The temper with which it deals with the prejudices of servants and the tricks of strangers is in itself quite a model for either master or mistress. Like the lady with her dairy-maid, "if you cannot do it, I can," has overcome almost every trouble—though the cream be sleepy, the cow skittish, or the solution of the difficulty depend, in bucolic phrase, on "lots o' things." If "Our Farm of Four-acres" be only read aright, the drawing-room and the dairy need not be quite so distant with each other; while the healthy recreations of a rural life may be made to become almost as proportionately profitable.

THE PRESENT CONDITION OF AMERICAN AGRICULTURE.

I said in my April communication that the statistics of book publishing and newspaper circulation, and common schools in the United States, would relieve us from the charge of popular ignorance. I propose now to show you how the general intelligence of our rural population is in part insured by the establishment of "district" or "township" libraries; and to remark on the condition of our agricultural press. Notwithstanding the attention which has always been given in this country to popular education, it is a fact, which has only within a few years attracted the consideration of our legislators, that although a majority of the people are engaged in agricultural pursuits, no special attention was given—either practical or theoretical—to the science of agriculture. Farmers' sons in the district school are taught more of astronomy than farming; and know better what are the boundaries of the Turkish Empire, than how to improve the soil within the boundaries of their farm lines. Those, however, who have watched the progress of things feel confident that a change will come, and that we shall not always look in vain for agricultural teachings in our schools, and agricultural books in our district libraries. The large and increasing demand for these books, and the wide circulation of agricultural journals, are producing an effect in the farmers' families in every part of the country, and this, outworking, will ultimately ensure the great public reform which we anxiously await.

Public schools having been established by State legislation, and federal appropriation of public land, the next step naturally suggested was, that district libraries of works upon history, biography, travels, discoveries, and inventions, and kindred topics, should be founded; that, having gratuitously educated the children of all classes, the poor as well as the rich, they might not be prevented by want of means from increasing their fund of information after leaving school.

New York, with a liberality worthy of so great a State, was the first to grant this precious boon to her rural population. In 1837 the Legislature voted an appropriation to purchase a set of Harper's School Library for each school district in the State, of which there were 10,000. The libraries containing about forty works of the character above described, were sold to the State for twenty dollars (£4) each, which included a plain deal case to contain them, as well. The first appropriation of 200,000 dollars, (or £40,000) was followed by like sums for three years, and has been further increased by annual grants of 55,000 dollars (£11,000) for new supplies; but this sum, divided among so many districts, becomes a pittance to each, scarcely worth applying for. When these public libraries were founded, there were but three works on agriculture published in this country, and if we wished to know what English farmers had done, or were doing, we were forced to send to London for a few books that even there were on sale. The three works referred to were Judge Buel's "Farmer's Instruction"—a first and second series—and Armstrong's "Essay on Agriculture," written originally for the *Albany Argus* newspaper, when Judge Buel was its editor, by the Secretary of War, during Madison's administration. Two additional volumes of the "Farmer's Instructor" were prepared for the school libraries after the death of the lamented Buel; but these few comprised, with the exception of stray pamphlets, perhaps, and republished fugitive pieces, our whole agricultural library twenty years ago.

Massachusetts, whose common school system is the best in the country, in 1839, followed the example of New York, and to the cause of popular education added this new aid of school district libraries. Her laws require that every town, or district, containing fifty families shall be provided with a school or schools, equivalent in time to six months for one school in a year; if containing 100 families, twelve months; 150 families, eighteen months; and the towns are required to raise the sums of money necessary for the support of the schools in the same manner as the other town taxes. The result is shown in the tables of our last census. Massachusetts, an old and thickly settled state, had within her boundaries but 1,055 natives who could neither read nor write. Reversing the picture, we find Virginia, a much larger and once more opulent state, which has cared but little for popular education, with a total of 75,868 native-born citizens unable to read or write!

The young state of Michigan, the first to put into actual operation an agricultural college, followed upon the action of Massachusetts and New York, in the matter of public libraries for her school districts, by giving to each township the sum of fifty dollars (£10) annually, to be expended by the "School Commissioners," who select such as they may think most suitable. Of these townships there are 1,500 in the State, and each embraces from six to ten school districts. Indiana in 1854, and Ohio in 1857 followed suite, the former by appropriating for two years the sum of 300,000 dollars (£60,000), and until within a short time she gave annually 80,000 dollars (£16,000), but some misapplication of the fund being suspected the annual grant has been withheld, and is not yet renewed. Ohio appropriated 80,000 dollars from the first. In both these States the Superintendent of Public Instruction, an officer elected biennially by the people, has the power delegated to him to select and purchase such books as he may think most suitable, and the libraries are all delivered to his address at the State capital, to be by him afterwards distributed to the different districts. These States, likewise, are divided into townships of several school districts each. Last year the contract for furnishing the 80,000 dollars worth of books for the Ohio libraries was awarded to Messrs. Appleton and Co., publishers, of this city, by a special clause, of which they were bound to furnish them, comprise twelve per cent. of the best agriculturl books.

Connecticut, a few years since passed a law that any district raising a sum not to exceed fifty dollars (£10), should have a like amount from the State Treasury, to expend in books, which were to be selected from a list recommended by the Superintendent of Instruction. Of these not above three per cent. were agricultural.

Illinois, seeing the liberal legislation of her neighbouring states, Ohio, Indiana, and Michigan, passed a law, authorizing the school directors, of whom there were three in each of her ten thousand districts, to select and purchase a library, for the payment of which they should assess a special tax upon their own district. It was made the duty of the State Superintendent to prepare an advisory list for their guidance; and he, being fully alive to the importance of agricultural books to agricultural men, recommended the list of Mr. A. O. Moore, of New York, with the addition of standard works on biography, travels, history, fiction, &c. The list of Mr. Moore comprised agricultural books alone; and those which were placed in these libraries treated upon draining, the breeding and care of domestic animals, rural architecture, fruit, vegetable, and flower culture, chemistry, bee culture, and all the departments of farm economy, making in all about thirty per cent. of the books in the library. This excellent example it is hoped will be followed by other States; if it should, the result can only be of great importance to our country.

The new state of Wisconsin, away west of the Father of Waters, and even Kansas, who has scarcely emerged from the fierce struggles and bloody scenes which marked her birth, are giving attention to this important matter; the former has actually appointed a commissioner to recommend a suitable plan for the speedy establishment of district libraries.

It will, no doubt, be interesting to you to know, that despite our bad farming, there is so considerable a demand for agricultural books, as to support an establishment exclusively devoted to their production. This is more than can be said of any Continental State, more even than your great kingdom can boast; and we submit with all deference whether "the present condition of American Agriculture" be not worthy the investigation of your intelligent men. A brief sketch of the origin and present condition of our agricultural publishing house shows—that prior to 1847 there was that lack of agricultural literature in this country, which I have previously explained. In 1843 Messrs. Saxton and Miles, booksellers, published the second volume of the *American Agriculturist*, a weekly journal devoted to the farming interest, and in 1847, one of the editors, Mr. A. B. Allen, wrote a book on Domestic Animals, the publication of which was undertaken by the above-mentioned persons. His brother, Mr. R. L. Allen, two years later, published a work entitled "The American Farm Book." Republication was made of "Stephens' Book of the Farm," "Thaër's Principles of Agriculture," "Johnston's Agricultural Chemistry," and other European works of celebrity. These were followed in pretty rapid succession by American productions, and the firm of Saxton and Miles being dissolved, Mr. C. M. Saxton continued the business on his own account, confining himself to agricultural publications. In 1855, when Mr. A. Moore entered the firm, there were fifty books on the list. In about two years the interest of Mr. Saxton was bought by his partner, who continues the business alone. During the last two years he has published twelve excellent agricultural works, all by American authors, and one of them "Downing's Landscape Gardening," is embellished with elegant steel plates, by our best engravers and artists. To give you some idea of the circulation of agricultural books amongst us, I may mention that of Dadd's "Horse Doctor" 20,000 copies have been sold; of "Youatt on the Horse," 23,000; "Youatt and Martin on Cattle, 10,000; "Olcott's Sorgho and Imphee," 4,000, in a little over a year; "Linsley's Morgan Horses," 5,000 in six months; "Downing's Landscape Gardening" (new edition), 3,000 in three months; "Herbert's Hints to Horse-keepers," 2,000 in two months; and of the other books on the list many thousands annually.

I have been to some trouble to obtain a correct estimate of the number and estimated circulation of our agricultural papers, and give the result below. It is almost unnecessary to divide them into those published in the slave and free States, for the proportion of the former is infinitively small; but, perhaps, in that way you will get a correct idea of the comparative enterprize of the cultivation of the two sections. The account stands thus:—

FREE STATES.			SLAVE STATES.		
	No.	Circulation.		No.	Circulation.
Maine	1	5,000	Kentucky	2	11,000
Massachusetts	4	44,750	Maryland	1	8,500
Connecticut..	1	5,000	Georgia..	1	8,000
New York ..	8	131,050	Virginia..	1	3 000
Ohio	2	18,000	Alabama.	1	1,750
Illinois......	2	12,000			
Michigan....	1	5,000			
Wisconsin ..	1	9,800			
Iowa.........		3,000			
	21	233,600		6	32,250

Besides these, a few have been commenced within a few months past; but their circulation, even their existence, is too problematical to be taken into account. It is quite possible that this estimate may be incorrect, but if so it will, I think, err in making the number of copies less, rather than more, than the mark. It should be observed that the papers published in New York and other northern and eastern States circulate largely throughout the east and west, and to some slight extent at the south; but you cannot fail to observe the extremely small support given to agricultural papers by the planters of the Southern States; a circumstance to be in part explained by the statistics of public education, as set forth in the last Federal Census. That Virginia, for the settlement of whose domain Raleigh laboured so long and so earnestly, and which was once the queen of all the sisters of the confederacy, should with 75,000 illiterate inhabitants, and but 3,000 copies of her agricultural paper in circulation, be reduced to the very verge of sterility and decay, will surprise no one who has studied the inevitable consequences of cultivation by slave labour.

The first agricultural paper in the United States was the *American Farmer*, established at Baltimore, Maryland, in 1819, by J. S. Skinner, and sold in 1829, for 20,000 dollars (£4,000), a large price for an agricultural paper at that early date. The *American Farmer* has been regularly published up to the present time; but Mr. Sands, longtime its editor, has recently left it, and commenced a new publication of a similar character. The *New England Farmer* issued in 1822, by Thomas G. Fessenden, as an eight page quarto, was sustained with varied fortune, until in 1846 it was discontinued, and from its ashes the present journal of the same name —from which I see frequent quotations on your miscellaneous page—sprang into existence. This paper is at present owned by Mr. Joel Nourse, the senior partner of the great agricultural manufacturing firm, and under his business management is very successful, having attained a circulation of 27,000 monthly and weekly copies. The next paper in order of establishment was the *New York Farmer*, started at the little town of Huntington, Long Island, by Mr. Samuel Fleet, continued for many years, sold to Mr. D. K. Miner, who secured the services of Mr. Henry Colman, as editor, until, finally, after many mutations of fortune, it went the way of the earth, and is no more. In 1831 Mr. Luther Tucker, almost our oldest agricultural editor and publisher, established the *Genesee Farmer*, at Rochester, New York, in the midst of one of the noblest grain districts in the world. At the end of the first year there were but 600 names on the subscription list; but acting on the principle of "Don't give up the ship," Mr. Tucker persevered, and succeeded. After a few years, weekly and monthly parts of the paper were issued, the circulation always increasing, and in 1839, in the natural order of things, the list had swollen to 19,000 subscribers. In this year the useful career of Judge Buel terminated with his death, and Mr. Tucker going to Albany, purchased the *Cultivator*, established in 1833, of Judge Buel's heirs, and united his *Genesee Farmer* with it. The *Cultivator* is still in existence, and published by the same person. The place left vacant at Rochester by the transfer of the *Genesee Farmer* to Albany was filled by the establishment of a paper bearing name of *The New Genesee Farmer*, but the distinctive appellation was afterwards dropped, and as *The Genesee Farmer* it is at this day in active existence; edited and published by Mr. Joseph Harris, a countryman of yours, who studied sometime with Mr. Lawes at Rothamsted.

Ten years ago Professor J. J. Maper issued in this city the first number of *The Working Farmer*, a paper which he designed to make the exponent of the principles of scientific agriculture, keeping pace with the discoveries and application of new processes in Europe more nearly than did his contemporaries. An analytical chemist of large practice himself, and having a strong bias for rural experiments, he was an early champion of the analysis of soils, the subsoil plough, under-draining, and more recently the Liebig theories of manures. He has, of course, met with much opposition, as each novelty was broached in turn; but has had the satisfaction of seeing each one of these hobbies "generally received." More recently he has put forth a new theory of the "progression of ultimates by their use in organic nature." He claims that from the formation of first soil from the *debris* of rocks, to the present time, the ultimate particles of matter by frequent use in vegetable and animal organisms have been refined, so that the manurial effect of a given quantity of potash or other mineral in the body of a man, is to-day much more intense than that of a like quantity taken directly from the feldspar or other rock, pulverized, and applied to growing crops. This doctrine is at present ridiculed by some, and dissected by others, but it is quite possible that experiments here and elsewhere will ultimately prove the Professor to be right.

PATENTS FOR PLOUGHS AND LAND-TILLAGE.

Occasionally we have given notices of inventions relating to "Steam Culture;" and we now proceed in order to those which still remain for review.

The patent of Mr. J. A. Williams, of Blaydon, Wilts, of date 8th May, 1855 (No. 1,030, price 1s. 4d.) has reference to an arrangement of machinery by which ploughs or other cultivating implements may be dragged over the land by the power of steam. There are two long narrow frames—both movable on wheels—employed, placed opposite each other at different ends of the field, the space between them being that which is to be ploughed or otherwise cultivated. One of the frames contains the engine, which is of the common portable class; this gives motion to the two drums or windlasses placed at the opposite end of the framing, one of which winds while the other unwinds the traction rope. The quick motion of the engine is changed to that of the slow motion of the windlass by any suitable arrangement of bevil gearing, this being driven by a driving belt passing round a suitable pulley on the engine. To the side of the framing nearest to the land to be ploughed a table or beam is secured; this contains a series of holes, placed equidistantly, corresponding to the width of the furrow. The framing placed at the opposite side of the field is firmly secured in position by shores or ropes, and carries towards the land side a similar table to that carried by the engine and windlass framing, and provided in like manner with holes. The use of these holes is to place the stems or axes of guide pulleys in, over which the traction rope is passed. The second framing—placed opposite to the engine and windlass framing—is provided at one end with a large horizontal guide pulley. The frame carrying the cultivating implement is hauled to and fro between the two frames; the guide pulleys being advanced, each time the ploughs are drawn across the space between the two framings, a certain number of holes in the table, according to the number of furrows made at one time. By this arrangement the framings are not required to be moved till the whole breadth of land included in their length is ploughed up. The ploughs or cultivating implements are attached to a small carriage, giving them an independent action from the strain of the rope or chain. This is attained by connecting them to the carriage by short lengths of chain, the carriage running on wheels, and being provided with a notched bar by which the draught is adjusted. Above the horizontal pulley, on the second framing, a standard is fixed, supporting a signal pole, which is turned by a handle attached; a bell is also attached to the pole. The object of the bell is to draw the attention of the engine-man in the windlass or first framing to the signal, which is operated upon just before the ploughs or cultivating implements have arrived at the farther end of the field.

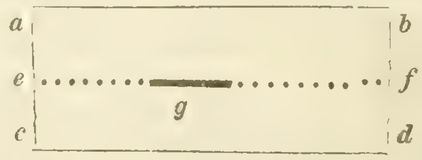
Supposing the space between the two framings requires to be harrowed, to the carriage frame the harrow (*a*) is attached, and the hauling rope (*b*) to the centre of the notched draught bar. The hauling rope (*b*) is passed over a guide pulley (*c*), the axis of which is placed in one of the holes of the table of the windlass frame; it is then continued along the table, passed between two fixed guide pulleys (*d d*), and from thence to the first winding chain (*e*). To the end of the draught bar of the carriage frame, next the unharrowed land, an intermediate rope (*f*) is attached; this is led off in the contrary direction of the hauling rope (*b*), passed over a guide pulley in the table of the second framing, and from thence to the horizontal pulley; the end of the rope (*f*) is finally attached to the end of the second hauling rope (*g*). As the line of draught of the second hauling rope (*g*) coincides nearly with the second winding drum (*h*) in the windlass framing, it does not require a guide pulley to pass over, but may be led directly to the second winding drum (*h*). The first winding drum (*e*) is then put in, and the second winding drum (*h*) out of, gear. The drum (*e*) put in motion by the engine, hauls in the rope (*b*), and with it the carriage frame with its attached harrows: the second rope (*g*) is at the same time uncoiled off the second winding drum (*h*) through the action of the intermediate rope (*f*), which is attached to the opposite side of the carriage frame. The first traverse being thus completed, the engine is stopped, and the first hauling rope (*b*) and intermediate rope (*f*) are disengaged from the carriage frame, which is then turned round, reversing the position of the harrows attached to it. The intermediate rope (*f*) is now hooked on to the carriage frame, and becomes the hauling rope, while the hauling rope (*b*) is attached to the opposite end of the carriage, and corresponds to the intermediate rope (*f*) of the first traverse. The first winding drum (*e*) is then put out of, and the second winding drum (*h*) into, gear. The engine is now started, which, actuating the second drum (*h*), pulls in the second hauling rope (*g*), intermediate rope (*f*), and with it the carriage frame and harrows; the first winding rope (*b*) now acting on the intermediate rope being uncoiled from the first winding drum (*e*). Just before the harrow reaches the second framing, the attendant rings the bell to attract the attention of the engine-man on the first framing. The signal is then turned, which warns the engine-man to stop the engine; by which time the harrow has reached the end of its bout. The guide pulleys are now to be changed, to suit the line of the third traverse. The operations here described are continued until a breadth of land equal to the entire length of the engine and windlass-framing is cultivated. The two frames are then passed forward so as to place between them a second portion of unploughed land. This shifting of the engine and windlass framing is effected by the engine—a rope being attached to one of the winding drums, passed over pulleys, and finally attached to a strut or post fixed in the ground at a considerable distance ahead. This affords a purchase, by which the engine can advance the framing the distance required. The second framing is then pulled by horses or other means, till its position corresponds to that of the windlass framing.

Mr. Williams, in the same patent, describes an arrangement of apparatus adapted for ploughing in what is termed "towards," that is, with ordinary ploughs in place of one-way ploughs, for which description of ploughs the arrangement just described is applicable. For this second mode of working, the two framings are not placed exactly opposite each other, but one is in advance of the other a distance equal to the whole length of the framing; the distance from the outer end of one framing (*a*)—that which supports the engine and winding drum—to the furthest end of the second platform (*b*), being equal to the width of the land to be cultivated; the position of the second framing (*b*) is reversed so as to bring the horizontal guide pulley in a line nearly with the second winding drum (*c*) of the first framing (*a*). To the carriage (*d*) three ordinary ploughs are connected, one being behind the other, to admit of an independent motion. The ploughs being drawn across the field up to the second platform (*b*) by the power of the engine, through the medium of the second winding drum (*e*), the intermediate rope (*f*) is disengaged, and the ploughs and carriage drawn to the opposite side of the land by horses or other means. The hauling rope (*g*) is then by a horse or other means uncoiled from the first winding drum (*h*), which, for this purpose, is thrown out of gear. The hauling rope (*g*) is then in readiness for the second or return traverse of the carriage frame with its attached ploughs. The guide pulley is then fixed in its proper aperture in the windlass frame, the hauling rope (*g*) attached to the carriage frame, the first winding drum (*h*) put into and the second drum (*e*) put out of gear. The first drum (*h*) is then put in motion, pulling in the rope (*g*) with its attached frame and ploughs; the intermediate rope (*f*) and second winding rope being uncoiled from the second winding drum (*e*), to be in readiness for the third traverse. The operation proceeds thus until the piece of land has been entirely ploughed, the last traverse being completed in the centre, each traverse being made on each side alternately. On the completion of the land, the frames are moved so as to bring a second breadth under operation.

The ropes are wound with regularity on the winding drums by the following arrangement:—In front of the winding drum a beam is carried along: this affords a bearing for a second lever, which works in a centre, and is capable of being moved from side to side, the sweep of the arc which its lower end describes being equal to the length of the barrel of the drum. The lower end of the lever carries a fork, to each side of which is fitted an antifriction pulley, for the purpose of preventing the chafing of the rope as it passes between the fork of the hand lever. When the rope is being wound on to the drum, the attendant moves the hand lever gradually from one side of the drum to the other, the fork of the lever, as it traverses the entire width of the drum, laying a coil uniformly over its surface—say, from right to left. The hand lever is then moved in the contrary direction, laying a coil from left to right.

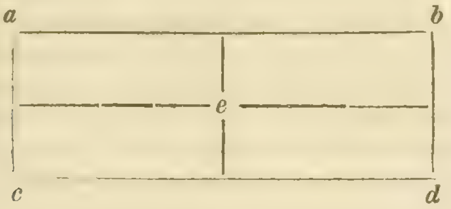
The patent next in order to be noticed is that granted to Augustus Dacre Lacy, of Hull House, Knayton, near Thirsk, Yorkshire; the date of which is Nov. 23rd, 1855; the No. 2,641, and price of specification 2s.

The first claim refers to the construction of the plough. This is constructed of a strong frame of iron carrying two sets of ploughshares, so arranged that one set operates upon the soil in one direction, the other in the opposite. The shares are arranged to cut the ground into furrows in the form of steps, and to throw the soil over as the plough proceeds. Two sets of coulters are also provided to the frame, and so fixed as to give the several vertical cuts to the ground at the depth at which the steps will be formed by the shares following in the previous line of the said coulters. Of the two coulters the first is the largest, and is called by the patentee the "tell-tale coulter," as it meets with and gives evidence of the existence of any obstacle which may hinder or endanger the onward progress of the ploughs. The ploughs with their attendant coulters are fixed on the under side of a plate, which forms a kind of platform on which the attendant sits. To the ends of the frames wire ropes are attached in such a manner that should the coulters meet with any obstruction which throws a certain amount of strain on the rope, the wire ropes are disconnected from the plough frame, which remains quiescent till the obstacle is removed. When this is effected the wire rope is hauled back to the frame by means of a windlass mounted on it and within reach of the attendant. The ploughs are worked by the following arrangement of steam engines and pulleys:

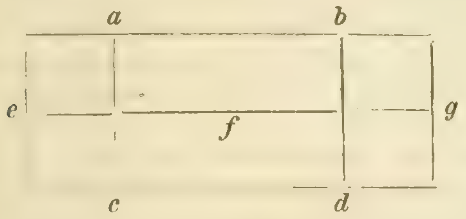


Let *a b c d* be the rectangular field to be ploughed; two engines (*c* and *b*) are placed at opposite ends of the diagonal *c b*. Rails represented by the lines *a c*, *b d* are laid down, and supported on an iron or other framing, and which may be fixed or stationary; *e f* are two pulleys, the position of which on the rails *c a*, *b d* may be changed to suit the various breadths of land under cultivation. Let *g* represent the plough frame, which traverses the distance between the rails *c a*, *b d*. A wire rope proceeds from the drum of the engine *b*, over the pulley *f*, and is attached to the end of the plough frame *g* nearest the pulley *f*. The second wire rope proceeds from the winding drum of the engine *c*, over the pulley *e*, and is attached to the end of the plough frame *g*. When the drum of one engine is winding in, that of the other is uncoiling, each rope being alternately the hauling and the return rope. Where fences or divisions of land occur across the line of the wire rope, and also to allow for the uneven surface of the ground, the wire rope passes over a revolving pulley or bar fixed in a wire fence in the former case, and in the latter over mounted rollers.

By means of the foregoing arrangement of the plough with the prime mover, the patentee proposes to cultivate the land as follows:



This diagram represents an area of land of 200 acres divided into four rectangular spaces of equal area. By placing engines at the points *a*, *b*, *c*, *d*, and *e*, it will be seen that five engines will be competent to cultivate 200 acres. The next diagram represents the arrangement necessary for 400 acres, in which seven engines (*a*, *b*, *c*, *d*, *e*, *f*, and *g*) are required, the number of engines required thus decreasing with the increase of extent of land to be cultivated. By the arrangement proposed, the patentee purposes effecting all the out-door work of the farm—cultivating, manuring, cropping, &c.



The patent next to be noticed is that granted to James Howard, of Bedford, and George William Baker, of Woburn, for improvements in machinery or apparatus applicable to the tilling of land.

In ploughing by steam the patentees propose to use turnwrest ploughs, any convenient number being attached by chains to a travelling frame. This is to be drawn forward by a chain, which, passing round a central guide pulley carried by the frame, is taken over a guide pulley fixed at the opposite corner of, or other parts of a field, and finally wound round the periphery of the winding drum of the steam engine employed as the motive-power.

The travelling frame, by which the pull of the engine is communicated to the plough, is of cast-iron, and supported on four wheels. Instead of being rectangular in form throughout its extent, the front part is contracted, to form a triangular frame, and is supported by two front running wheels, and is further provided with a series of guide rollers (*a*). The hinder part of the framing is carried by two large running wheels. Near the back part of the framing a loose running shaft (*b*) is supported in bearings made on the lower edges of the sides of the framing. This supports a series of four pulleys (*c c c c*), provided with clutch boxes and levers, by which the pulleys (*c c c c*) can be thrown in and out of gear, and allowed to revolve or be kept fast upon the shaft (*b*). In advance of the shaft (*b*), another shaft (*d*) revolves in bearings fixed to the framing, on the centre of which a double chain pulley (*e*) is keyed. These pulleys receive the taut and slack ends of the draught-chain connected to the windlass barrels of the engine. At the opposite ends of this second shaft (*d*) clutch boxes (*f g*) are fixed: these clutches take into stops on the inner sides of the framing, so that when the clutches are thrown into the stops the shaft (*d*) is kept from revolving. The clutch-box (*f*) to the left hand of the shaft carries a toothed wheel (*h*), which engages with an intermediate wheel (*i*) running in and supported by a stud bolted on to the side of the framing. This intermediate wheel (*i*) engages with a third toothed wheel (*k*), which is keyed on the shaft (*b*) at the back of the frame. The clutch box (*g*) at the right hand of the shaft (*d*) carries a toothed wheel (*l*) which engages with a toothed wheel (*m*) keyed on the end of the shaft (*b*). This arangement admits of the shaft (*d*) which carries the double-chain pulley (*e*) driving the shaft (*b*) which carries the four pulleys (*c c c c*) always in the same direction, whether the shaft *d* be revolving to the right or to the left hand. The shaft (*b*) at the back of the framing is used only as a draught bar, until the framing, with its attendant ploughs, has traversed the length of land to be ploughed, it being held fast during the traverse by the gearing wheels (*h i k l m*). On the draught framing reaching the end of its traverse, the shaft *d* is allowed to revolve loosely with its double pulley (*e*), by the clutches being thrown out of gear; this revolution of the shaft *d* being caused by the drag of the taut chain which passes over one side of the double pulley *e* keyed on the shaft *d*. The shaft *d* being thus set in motion by means of the toothed gearing (*h i k l m*), it imparts motion to the shaft *b*, with its four pulleys (*c c c c*). As the clutches of these pulleys are thrown into gear, each pulley begins to revolve and wind round on its periphery the chain with which the plough is connected to the framing, as the ploughs come severally up to line the clutch boxes of their respective pulleys, are thrown out of gear, either by the hand or the plough chain striking a projecting stud fixed to the lever of the clutch. When all have come up to line, the travelling frame is turned round, to repeat the ploughing in the opposite direction. The fore wheels of the frame are supported by a swivel frame connected thereto by a swivel pin; to the swivel frame a strong lever is provided, which extends backwards within easy reach of the attendant. This lever not only serves to guide the frame as it is progressing over the field, but enables it to be turned easily at the end of the furrow, the continued drag of the hauling chain greatly aiding the action of the lever. The taut end of the hauling chain passes over guide pulleys (*a*) which retain it in a central position.

The friction pulleys which the patentees propose to use, to receive and guide the hauling chain at distant parts of the field, are provided with spherical bosses, which fit to corresponding spherical projections on the axles. The spherical boss is made in two halves, to embrace the spherical projection on the axle, and bolted to the pulley. A hook on the strap which carries the axle of the pulley permits of the pulley being held fast by the anchor. By this arrangement of pulley a slight oscillating movement is allowed it, so as to give it a certain amount of self-adjustment to suit the direction of the strain.

The second part of the patent refers to the improved construction of the turn-wrest ploughs employed, which improvements are applicable where animal draught is employed, as well as where steam power is the hauling agency.

The last patent invention which at this time we have to notice is that granted to Thomas Keddy, of Handsforth, in the county of Stafford, dated 18th August 1857, No. 2194, price 9d. The apparatus is of the same class of steam cultivating mechanism of which Usher's steam plough forms an example; the steam-engine which works the cultivating implement progressing over the land. The mechanism consists of three essential parts:—First, the guiding machinery by which the motion of the whole apparatus is directed. Second, a carriage moving on two heavy rollers; these rollers not being cylindrical in their periphery, but formed of prisms of ten, twelve, or other number of sides. The rollers are geared together, and an endless jointed band of metal passes over them. Within the band a series of small cylindrical rollers causes the lower portion to bear in its whole length on the land, similar small rollers supporting the upper part of the band. The third part of the mechanism is of two parts: first, a series of screws, resembling auger points — six in number; these are placed vertically in front of the machine, and have motion given to them by means of bevil gearing from a horizontal shaft above the line of screws; the depth to which the screws penetrate the land is regulated by guide rollers, which can be set to give any required depth. The second part of the third division of the mechanism consists of a series of prongs fixed to a plate to which an oscillating movement is given. Beneath the moveable plate a fixed plate is provided, with a series of holes through which the prongs of the moveable plate pass. An up-and-down motion is given to the moveable plate by means of a crank, the result of which is, that the prongs are drawn up from time to time through the holes of the fixed plate, and cleaned from all extraneous matter. The prongs above alluded to are straight, in order to allow them to move in the holes of the fixed plate; but they are followed by a series of curved prongs, the office of which is to collect all switch or other matter from the land.

One-half of the rotary screws or tillers rotate in a different direction from the other: coulters precede or are placed between the tillers. The frame which carries the tillers is capable of being raised or lowered, in order to regulate the depth to which they penetrate the land.

When being transported from place to place, the mechanism is not borne by the rollers previously described, but by a pair of wheels, the axle of which is connected with the carriage by hydraulic rams or pumps. By forcing water into these rams, the carriage is raised, and the weight taken off the rollers and thrown upon the wheels.

VEGETABLE OILS AND FATS.

There is a slight difference of practice in this country from that which prevails in many others. Here our farmers and graziers use their best endeavours to convert vegetable substances into animal fat; abroad they are content to grow and produce vegetable oils and solid butters—which are obtained in abundance, independent of animal assimilation. In Great Britain we must fain look to our oxen and sheep for the indigenous tallow and fat; for we have no genial or tropical climate to ripen the various fruits, nuts, and seeds, &c., which yield oils and fats in such abundance elsewhere. Fortunately, however, commerce comes in, to supply the existing and increasing demands of our manufacturers for soap, candles, lubrication, food, &c. And great as is the consumption for various purposes, the imports of old and new substances keep pace therewith. Even tallow, of which we require so large a foreign supply, though it seems decreasing from Australia and South America, is on the increase from Northern Europe, and last year's imports were even some 25,000 cwts. above those of either of the two preceding years. The products of the whale fishery—train-oil, blubber, and spermaceti, for which we are now chiefly dependent upon the American whalers—still reach us in pretty steady supply, our imports averaging for the last three years 20,000 tuns.

The imports of palm-oil and cocoanut-oil last year were below those of the preceding year, and the price keeps up. Olive-oil came in in larger quantities, the imports being between 6,000 and 7,000 tuns in excess; and there were about 4,000 tuns of seed-oil received less than in 1857.

There is scarcely, however, a limit to the supply of vegetable oils and fats obtainable from different localities, upon fair notice and a reasonable price. From India, besides the innumerable small oilseeds adapted for crushing, which can be raised in abundance, there are the Bassia butters, or Mohwa oil and cocum butter—cocoanut-oil—which comes forward in such large quantities from Ceylon and Cochin. In the island of Ceylon there are now 2,500 acres under culture with the cocoanut palm.

From the far East we receive the insect-tree wax of China, the Borneo vegetable tallow pressed from the cotyledons of an undescribed tree, and the Japan vegetable wax now coming forward in such large quantities from the ports of that empire, with which we have recently opened up trade relations. This Japan wax is likely to prove a very important staple of commerce, from its whiteness, hardness, and the quantity that can be obtained of it. It is procured from the small fruit or seeds of a species of sumach, which is extensively cultivated in plantations by the Japanese. Two or three vessels, with several hundred tons each on board, have already arrived here and in Holland direct from Japan; and now that an increased number of ports in Japan are opened to us under the terms of the recent treaty, larger supplies may be expected to come forward.

It is curious to note the variety of sources of vegetable oil, whether from the tiny rape or flax seed, the various nuts and oily fruits, or the copperah or dried pulp of the cocoanut. The ground-nut or underground seeds of a leguminous plant yield to commerce a large quantity of oil in Africa and America. In China the seed of a species of camellia is used to extract oil from, which is known as tea seed oil. The hitherto wasted seeds of the cotton plant extracted from the wool are now decorticated and pressed, and this is converted by bleaching into a very useful oil. Another instance of the utilization of a formerly waste substance for the purpose of oil is the kernel of the fruit of the oil palm. Formerly this was usually thrown away, the palm oil of commerce being obtained only from the sarcocarp or pulp of the fruit surrounding the nut. About 50,000 tons of palm oil are annually shipped from Western Africa, and the kernel of these ought to yield about 75,000 tons of oil, or one-half more than the quantity obtained from boiling the fruit at present, making a difference of £2,000,000 to £3,000,000 in the extent of the trade.

Oil is obtained from the berries of several species of *Myrica*, known as the candle-berry myrtle, from the use to which the solid oil is applied.

In Nassau and Switzerland, as well as in Cashmere, walnut-oil is much used, and is no bad substitute for olive oil in preparing salad. The industrious and exceedingly economical German housewives know how to render rape oil fit for the purposes of an artisan's kitchen by the simple process of boiling a quantity of it in a frying-pan with a piece of bread and an onion.

One of the most recent and extensive sources opened up to the manufacturer is the preparation of oil from peat and petroleum, or mineral oil. The beautiful candles, superior to wax, now obtained from the paraffine and Belmontine, are instances of the scientific application of chemistry to trade purposes resulting in the conversion of these waste products to very important uses. The production and trade in oils and fats, animal and vegetable, forms one of the most important branches of commerce; and so urgent and growing are the demands for various economic uses, that new supplies are eagerly sought for in every quarter. The aggregate value of the oils and fats imported is about nine millions sterling; to which has to be added our home production, obtained from the tallow-melters, the butchers, the kitchen refuse, the bone-boilers, the oil-crushers, and other sources.

FECUNDITY OF GRAIN.

The fecundity of grain, whether wheat, barley, or oats, when nature's laws during its growth are strictly observed and left uninterrupted, appear to be beyond belief for want of experimental knowledge, and not unfrequently are faithful descriptions of specimen roots grown and produced from single grains 100 to 1,000 and 4,000 fold (whilst average productions are not 20 where planted in clusters, and which is a general rule), pronounced as downright falsehoods, absurdities, and impossibilities, though ocular demonstration and statistical calculations and statements bear witness to the truth of it. Such specimens, say they, are not produced from single grains, but from two, three, or more, planted close together, and by a *scheme* of the cultivator, ingeniously contrived to entwine the roots and shoots, so as to *appear* only the production of one grain.

Sceptics, however, may rest assured that such palming upon the public mind is not the case, and is foreign to our wishes; moreover it cannot possibly be so, inasmuch as the laws of nature defy it, and we challenge anybody to gain as much produce from two, or any number more grains planted close together, as we ourselves or they themselves can grow from one planted singly. Our own frequent experience has proved (and to remove arrogance, common sense will convince any one), that neither two nor twenty grains planted in one small hole will yield so much as one planted by itself, no more than as many apple-trees, turnips, mangold wurtzels, potatoes, or any thing else will produce as much measure or weight as if they had been planted separately: with this proviso, however, that due time and space be allowed and allotted for each plant to perform its natural capabilities. August and September is the time directed by nature for planting wheat, when it will shed or sow itself, nicely separating and distributing it, when wafted by the wind, each grain in an isolated manner, as if an All-wise Providence had intended it for the imitation of man. Accordingly this is the time we have adopted for sowing wheat, and October the best season for sowing barley and oats, in order to produce extraordinary results; hence the idea and utility of sowing grain singly, uniformly, and early, whatever quantity we or any other people may think proper to plant on any given space of land. Incredulous interested persons will do well to experience for themselves (for we do not desire to be arrogant in the matter) the truth of all such statements bearing on this point, by planting single grains, strictly adhering to proper time and space as here directed, in order to obtain satisfactory results, not placing dependence so much on ground highly manured for the purpose (this may prove fallacious), as land thoroughly cultivated in the true sense of the word, and kept free from weeds. Surface solidity also, after such thorough *deep* stirring of the soil, will prove of more avail than continual loosening it around the plants during their summer growth, which causes them to tiller unseasonably. Our own specimens for competition in 1860 are already planted and germinated, and to give fair play to nature, we have chosen some of our poorest land, which has not been stirred for a twelvemonth, and has not had a particle of manure for four years, since we have had it, nor we know not how long before.

It is an old saying and a true one, " solid ground for wheat :" true; but it should be explained, "*surface* solidity," after perfect cultivation of the soil *below*, and not a rock-like underpan, trodden by horses for ages past, which prevents an essential point—the absorption and percolation or filtration of the rains, and which causes so much fuss about draining now-a-days. But the *steam plough* will no doubt eventually, and we hope speedily, set this argument at rest, and effect wonders in agricultural science never before achieved. Since our friend Bentall's "broadshare" has been brought into general use great wonders have already been performed by it, in extricating weeds on etches in summer, preparatory for deep ploughing in autumn, in such a complete style as ordinary implements and manual labour could never have accomplished; but with all due deference to our neighbour Bentall's broadshare, which may be faithfully declared an invention *pro bono publico*, Mr. Fowler's *steam machine* being on the advance, may reasonably be expected ere long to supersede it, and every art and contrivance which human thought and ingenuity ever suggested to effect the *perfect* cultivation of the soil, and will no doubt ultimately annhilate all land cultivation by the present plans. All hail, then, to mighty steam! and to the all-powerful steam-engine! the master-piece of human skill! the most valuable present that philosophy has yet given to the arts of man! Approaching to the nature of an animal of leviathan power, incapable of pain or lassitude, yet it can be put into the most rapid motion, even by the delicate finger of a child! The noblest and most obedient and willing drudge that ever was employed for the benefit of man! With it we subdue nature, nearly annihilate space and time; procure for us coals to warm our dwellings, cook our food, cultivate our fields, thrash, dress, and grind our corn, and even make our bread! Thus we "put a hook in the nose of the leviathan, play with him as with a child, and take him as a servant for ever!" We feel our hearts expand with gratitude to the all-merciful and supreme Being for permitting us to live and see this, the noblest and most valuable of human inventions, enter our fields, by which in a very few years also, it will cheapen all the necessaries of life, and secure the contentment, comfort, and happiness, we hope, of all our fellow-men, by enabling the earth to supply them with an abundance of cheap, wholesome, and nutritious food as well as clothing. "All hail," then, we repeat, to all-powerful steam!!

HARDY & SON,
Seedgrowers, Maldon, Essex.

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

MEETING AT EDINBURGH.

Within a comparatively recent period the three National Institutions of Agriculture have all been in a state of considerable disturbance. This is the more noticeable, as the two elder at any rate had long preserved the even tenor of their way. So thoroughly established, indeed, had the direction of either gradually become—so strictly in accordance with good precedent was every thing they did—that he must have been a bold man who would venture to suggest alteration or improvement. In truth, such interference was never very gracefully received, and consequently for a time but rarely offered. An opening, however, has occurred almost simultaneously both in England and Scotland; and, undoubtedly, in either instance the most has been made of it. We need not dwell here on the contemplated changes in Hanover-square, but we may say a word on the effect of the late stormy weather in the North. It certainly appears to have done no harm. On the contrary, many leading men of the Highland Society personally assured us these discussions would eventually tend to much good, and give the great body of members a far stronger interest in the proceedings than they had for a time been suffered to enjoy. Something of this is already perceptible. The conduct of the Edinburgh show was far calmer than that which has distinguished many of the previous anniversaries. The observance of rule and order was maintained without any very emphatic display of authority; and yet never, perhaps, has such an occasion passed off so well, or with so much general satisfaction.

There is no denying that this Edinburgh Meeting was regarded as something of a crisis in the career of the Society. Had anything gone wrong, had anything ungracious or offensive occurred, there is still an undercurrent of opposition quite ready to make the most of such arguments. But we must repeat that everybody was on his best behaviour, and that the business of the week, so far as we could watch it, was not marred by a single mischance or dispute. A certain desire, moreover, to march with the spirit of the times is now clearly observable. For the first time the public had two days allowed them to inspect the stock, and for the first time, too, were the cattle covered in. It is very fortunate that they were, as the weather was by no means settled, and some heavy rain fell on the Wednesday afternoon. But the Society has to go a step further in this direction, and give the implements the same protection. We were loath at first to offer any very strong opinion as to the arrangement of this department of the Meeting, but the experience of year by year only the more confirms our English notions as to its few advantages and many drawbacks. The rain itself was, perhaps, the most severe commentary on such a system. Only picture prize machines of all descriptions scattered over some acres of ground, without an atom of covering either for the exhibitor or his wares, and a heavy storm coming on! Let the several entries of each section be placed side by side, if you please, for the inspection of the judges, but then allow the makers subsequently to collect them in their own stands. The present plan positively spoils trade, and, as we said last year, "it would be quite as much for the good of Scotland to buy as for England to sell." Many of the manufacturers would gladly pay for the accommodation, which it must be borne in mind the Highland Society now alone refuses them. The English firms, more especially, are gradually culminating in their expression of dissatisfaction on this point, and the Scotch farmers are at length beginning to thoroughly appreciate English machinery. Never previously was the admission so openly made, as never before, perhaps, was the superiority so thoroughly demonstrated. About the most striking example of this was the trials of the ploughs on the Tuesday, in the presence of such a crowd of landlords and tenants as one rarely or ever sees so early in the proceedings. There were a great number of pair-horse ploughs put to work, chiefly of course of the Scotch swing make, but fortunately with one or two of our wheel-ploughs by way of comparison. Better still, these went bodily into competition. The Messrs. Howard, of Bedford, who last year at Aberdeen held off so determinedly, now entered openly for the premium, and won it as fairly. The most clannish of Scotchmen confessed there was no work like it. The noble President of the Society was delighted, and local men hung round the performance to gather hints and wrinkles for their own advancement. Mr. Sellars was, to the credit of the country, a good second, and Page of Bedford, although we believe not mentioned by the judges, as honest a third. Still the interest centred on the other English plough, and the only complaint was that the Hornsbys, who were present, had not also gone to trial. It was clearly against them, in the estimation of the public, that they did not. But the non-prize system is susceptible of endless ramifications and interpretations, and in endeavouring to observe them only too religiously the Grantham house placed itself in a somewhat false position. It is curious to see how they came to do so. There is, then, in London an institution, of the proceedings, of which, although little is heard, yet that still exercises considerable influence in its way. It is, we think, termed the Society of Agricultural Engineers, having for one of its chief objects the abolition of the prize system. In the prosecution of such a laudable endeavour, when it was found a few months since that the Highland Society would not give way, but still continued to offer premiums for implements, a majority of the agricultural engineers came to this resolve—They would not exhibit at all at Edinburgh, and we are assured a paper to this effect was signed by Clayton and Shuttleworth, the Howards, the Garretts, the Ransomes, and others. The Hornsbys alone, however, would not promise thus much, and so the proposal fell in, and those who chose were at liberty to enter for the Scotch meeting. Clayton and Shuttleworth and the Hornsbys appear to have done so, under the idea that as at Aberdeen they were bound not to compete. Mr. Howard, on the other hand, sees the absurdity of attempting to persevere in so impractical a course, and so far as he is concerned the non-prize plan is at an end. But his opponents and fellow-engineers maintain that they have not been fairly dealt with, and that had they known he was going to compete they should have arranged to do so, too. As it was, the Hornsbys did put a plough to work early on Wednesday morning, for which they were severely reprimanded. But we scarcely see the force of this. Were not ploughs permitted to go to work at Aberdeen, "not for competition," but to show their character in comparison with the prize-takers? And the Hornsbys did no more. However, this dispute is a very suggestive one, and lays bare the secret and purpose of the whole agitation—when once you get to the top of the tree be content to stop there. People said Hornsby was afraid to endanger his Warwick triumph at Edinburgh. And others asked if Howard had been first and first in England whether he would have competed in Scotland? In speaking of this year's experiment of no prizes in Ireland, as tried the other day at Dundalk, *The Irish Farmer's Gazette* says, "The absence of trials or competition for prizes has in some degree lessened the interest taken in these shows, and will no doubt act injuriously on the funds of the Society, and, if we mistake not, *also on the exhibiters.*" It certainly so acted at Edinburgh. Mr. Howard, who did compete, was in general favour; and Mr. Hornsby, who did not, in almost as much disgrace. The Society of Agricultural Engineers are singing terribly out of tune with each other; and we should really counsel them, as the parish-clerk did his choir under similar circumstances, to "*drap* it." We must be understood as by no means divulging any private or confidential intelligence. All we have recorded was the common talk of "the trade;" while even telegrams were running up and down during the Tuesday, as to what the Society of Agricultural Engineers should or should not do.

We have considered it only a duty to make some special reference to this matter, obviously important as it is to the managers of our agricultural associations, as well as to the whole body of our implement-makers. The one great deduction is inevitable. As Lord Brougham said the other day, "Man's lot is to compete with his fellows;" and the more openly he does so, the better. We counsel our different societies, ere they commit themselves to the non-prize system. We put it to the great body of manufacturers whether they should follow "the Society," the very generals of which cannot agree with each other? There is a fine opening now just dawning for the introduction of good implements into Scotland; but we fearlessly assert that this can never be made the most of, without the incentive of public competition. Let us remember how the people crowded round these trials, and how ready they were to conviction thus put honestly before them. And let us compare with this the listless way in which they looked at entries that carefully avoided such a test. When the agricultural engineers signed their "round robin" not to exhibit at Edinburgh, because premiums were offered, they were doing both themselves and the agriculturists of Scotland as much harm as it is possible to conceive. As a correspondent devotes a paper specially to the implement section of the show, we may now turn to some of its equally attractive features.

A Scotch show of stock is essentially national, and the Edinburgh meeting perhaps of all others was peculiarly distinguished in this wise. It was in the native breeds that its great strength was to be found. It was the Highland and Ayrshire cattle, the Cheviot and blackfaced sheep, and the Clydesdale horses that showed to the greatest advantage. We use the term advisedly. No other kinds were anything like so much at home here. The very Shorthorns, now at home almost everywhere, certainly suffered as a class against the rough-coated but blooming-looking mountaineers. The Leicesters and Southdowns had rarely the healthy vigorous appearance of the long bang-tailed Cheviots, or the resolute curly-horned denizen of "the hill." In a word, there is no other quarter of the kingdom in which climate has so much to do with it; and although they may be improved, it is rarely that the original breeds can be displaced. In the lowlands, and where the country will pay for high farming, some change may be observable; but elsewhere, almost every district adheres to its own sorts as faithfully as to the pedigree of its clan or the pattern of its plaid. Even the most advanced of agriculturists have discarded the fine Leicesters we saw them buying at Berwick a few years since, and have gone right back to their own sorts. And a Scotch Leicester is rather a different animal from our English one, as Mr. Wiley gave us the opportunity of remarking at this very meeting. Amongst the horses, here so comparatively close to the banks of the Clyde, there was no such chance of a comparison. Saving only a good-looking thorough-bred horse, or a curiously small Shetland pony, there was scarcely anything to interfere with the one long line of Clydesdale stallions, Clydesdale mares, and Clydesdale colts and fillies. Still, like the horned sheep or the Highland cattle, the Clyde horse is clearly susceptible to improvement, or, in other words, to the influence of these meetings. A Clydesdale prize mare is now a very different animal from that the members of the Highland Society hung up in their Museum Hall in 1840, with her long legs, weak thighs, hollow back, and light middle-piece. Either the painter or his patrons must have been put to it for a subject in those days.

The great show of horses, however, was not on the show ground; or, at least, it was not here that the stranger gathered his impressions of the real use and value of the Clydesdales. They may be pampered up for mere exhibition, and are certainly as a rule made very fat. But at Myreside Farm, where the implements were on trial, there were some fifty sets of working pairs, ready to take out the ploughs, harrows, grubbers, and mowers. These, as usual, were borrowed for the day from the neighbouring tenantry; and never were such a lot of plough-horses got together. It was, in fact, the Clyde horse shown to the greatest advantage—in excellent condition, very uniform in character, generally of great size and power, they fairly for a time monopolised the whole interest of the scene. People could scarcely be got to look at the work, but were going about trying to pick out the best couples—by no means an easy matter. It was not, indeed, until the ploughs started, and horses and implements were nearly all matched, that the visitor remembered what he had specially come to see. There was not only the make, shape, and action of the Clydesdale as a cart-horse that commanded so much admiration, but equally so the manner in which they were kept. They were as fresh and as lively as kittens, although still, we were assured, only in common working order. But the Scotch farmers evidently pride themselves on this point, and a ploughman and his pair will cost on an average quite a hundred a-year. Some were consequently anxious enough to have another look at the steam plough, but strange to say there was not one in the entry. For some altogether inexplicable cause the Society declined this year to give any prize for such an invention. The Messrs. Howard, however, offered to send a set of Smith's apparatus providing a field could be found to work it in. But even this could not be promised, and so the meeting was minus what should have been one of its chief features.

The Clyde horses in the catalogue quite maintained the reputation of those we had seen the day previous. It was pronounced to be one of the best entries of them ever seen; but was certainly not for stallions equal to the Glasgow show of two years since. The first prize aged stallion, a grey horse, was the subject of a deal of discussion, and it is rather difficult to understand how he came to be ranked so highly. Standing by his side, he is by no means a true-made animal to begin with, being but indifferent before, and with little of the acknowledged character of the Clyde about him. He loses this yet more when had out; for he is a wretched heavy, slovenly goer. Still it was said that he gets capital stock; but this must be a curious point to judge a horse in the show by, where men are assumed to know nothing of an animal but what they see before them. The second prize, a bay horse, queerly marked with the *black* leg, running right over the hock and up to the stifle, was generally, and as we think justly, preferred. He is smarter to look on, more compactly built, and altogether a better horse out. But the strength of this section was found in the mares with foals, and mares in-foal. We never recollect such a succession of good animals, and generally so much alike as to answer at once for the care with which the breed is now preserved. As a rule the Clydesdales show far better at five or six years old than they do as young stock, and some of the yearlings on the Links looked very mean and poor when put in comparison with their elder brethren. It is, indeed, difficult to imagine that they could ever develop into the fine horses they do; but it appears they are kept very indifferently until a year or eighteen months old, and then gradually "put on." The entry included many well-known prize animals at Aberdeen, Perth, and elsewhere; but, the catalogue was lamentably in-incomplete in this respect, and did not give the name or pedigree of a single horse. It may be much improved by being modelled henceforth after our English one, not merely as regards the horses, but also in the entries of other kinds of stock. For instance, we cannot possibly understand why the pedigrees and names of the shorthorns should not be given with the number of the animal, instead of being all huddled together right at the end of the book, where not one man in a thousand ever sees them or reads them.

Notwithstanding that this addenda advised us of some very high-bred animals, the show of Shorthorns was not a great one. In truth, had it not been for Mr. Douglas' entries, the cow and heifer classes would have been wofully weak. But the master of Athelstaneford came very welcomely to the rescue, and with more determined success than has yet attended him this summer. The beautiful Venus, the renowned Ringlet, the Lady, and her attendant companion the Maid of Athelstane, were our fellow-voyagers from Belfast to Glasgow; and we found them all in high health and honour again, adding by their own innate attractions to the picturesque show ground at Edinburgh. It will be seen that Mr. Douglas took the first and third premiums for cows, and the first and second for two-year-old heifers. The latter—the Lady and the Maid of Athelstane—have, like the Queen of Trumps and Venus last year, their two parties; and while the Maid was preferred at Dundalk, the Lady had the lead in Scotland. They are a most admirable pair, and it is difficult to separate them; but although the Maid may have a little the best of it for quality, the Lady has by far the finer head and fore-quarter; and, for choice, we lean to the second reading. The cow Volga, that separated Mr. Douglas' two, also beat Rose of Sharon in Ireland; and has so been first at the Irish, second at the Scotch, and third at the English meeting. She was bred by Mr. Stewart, of Southwick; and is not only very useful looking, but very well bred, going back to the famous Cherry tribes. Mr. Stewart, however, could not get her to breed, and she was sold as a butcher's beast. But she has since been frequently exhibited, as well as objected to as not being a breeding animal; although now at eight years old, she has a calf by her side. The first prize yearling heifer from the Messrs. Turnbull's herd, is very sweet and neat looking, and the Duke of Montrose's second and third are both well bred and well made. But "the field" behind those placed was terribly scattered. The bulls were generally better, and the first prize one, bred by Mr. Bolden, goes back to the Duchesses; although, like many of the Bates breed of bulls, he is nothing so very extraordinary to look at. He was the first prize two-year-old at Aberdeen, and Mr. Gulland's was there third in the same class, so that they still keep their relative positions, but there is now very little to choose between them. The third was the third aged bull at Aberdeen, and the first at Dundalk last week, and perhaps for appearance, size, and symmetry he was here, too, the first of his order. It must have been "the quality" that beat him. The two-year-olds were a good but small class, and the yearlings not of such equal excellence. In this lot Lord Kinnaird had the best for shape and symmetry, and Mr. Smith for touch and pedigree. The latter, indeed, is very highly connected, being by a son of Booth's Crown Prince, and bred by his Royal Highness the Prince Consort. His quality is certainly very fine, but he is "just" a ragged animal to look on.

We have already spoken to the remarkable excellence of the native breeds, and we may dwell more especially on the Highlanders and Ayrshires. In our many visits to the North we have never seen such a show of the former. Indeed, we began to think they were growing out of date of late. But they quite recovered themselves at this meeting. There was more size, as usual rare constitution, good forms, and that hardy picturesque appearance that would, above all things, go to qualify them for those regions from which they take their title. The bulls were very grand, the cows more useful; but if we were to select a class, it would be the three-year-old heifers. If we were to go yet farther, and name three animals as perfect specimens of their kind, they would be Mr. Douglas' shorthorn heifer Venus de Medicis, Mr. Drew's milking Ayrshire cow, and Mr. Campbell's three-year-old Highland heifer. The last named of these is certainly the finest-looking Highlander we ever encountered. There never was such a head, so grand, of such wild beauty, with the wide-spreading horn, and singularly expressive eye. If Rosa Bonheur wants a fitting model for her easel, she must go to Jura. But Mr. Campbell's heifer does not "go on her head" merely. She is famously fleshed, has a capital coat, and is not only handsome, but useful. She was well supported throughout; and although we cannot see that this should be just the district for them, the Highlanders have never mustered before in such force.

Almost as much might be said for the Ayrshires, which were more particularly distinguished by the presence of two animals—the first prize bull and the first prize cow—a long way the best of a very good entry. The cow is the sweetest-looking, cleanest, prettiest-marked milker that even the lads and lasses of Ayr ever had amongst them. In a little higher condition, and with her back-bone not quite so prominent, she would have been a perfect picture. There were others far better covered, but none had her *fine* appearance or graceful beauty. Her owner, Mr. Drew, had a coarser cow, also the first in her class, which has occasionally had the preference of the favourite here; but for her especial purpose—the dairy—there was nothing to compare with the milking cow. The black polled cattle were not very numerous, but there were some well-known animals amongst them. The Angus cows were especially good, Mr. Collie's first having been second at the great show at Aberdeen last year. The cross-breds were chiefly noticeable for the presence of Shorthorn blood in them. Almost all of them had some of it, while in many this was so strong that they might have been pardonably taken for pure-bred beasts. In fact, they frequently were, and many a visitor, without going to the trouble of consulting his catalogue, put them down as "just another lot of Shorthorns."

In the sheep as with the cattle the Scotch kinds were very superior. In truth, neither the Leicesters nor the Southdowns showed to much advantage. The former had no uniformity of character, and English and Scotch judges would have differed materially in settling the awards. The Scotch Leicester is, indeed, of quite another sort of sheep, and occasionally, we should say, anything but a pure one. The Southdowns were completely overridden by the presence of the prize sheep from Warwick. The Society was particularly anxious that the Duke of Richmond should make some entries, and his Grace was kind enough to do so. He sent not only some from his flock at Gordon Castle, but others from Goodwood. Those from Sussex included the famous first-prize Royal shearling, the first-prize old ram, and the first-prize shearling ewes, and the comparison was almost too cruel. Even the duke's own Scotch sheep suffered materially, and nothing of course had a chance with the grand, handsome animals that made so great a sensation at Warwick. It is remarkable that the Sussex shearling ram is a twin, and, although both were reared, the brother has never yet been exhibited, but has been kept at home less for ornament than use. These sheep, it appears, do not go back to the Babraham cross, but, as the shepherd phrases it, "are bred all away from Mr. Webb." The other long-wools, that is to say Cotswolds, are in the hands of the Duchess of Gordon, Lord Kinnaird, and Mr. Skirving; but Mr. Handy helped them out with a few sheep sent direct from their native hills.

The small show of pigs was also greatly "assisted" by exhibitors from over the Border. Mr. Harrison sent his prize Warwick boar, and the prize again here. Mr. Mangles entered a couple of his white sows, that have each in turn been winners at the Yorkshire meetings, and that, with a boar, and a pen of three young pigs, were all more or less successful now. Then Mr. Robinson had an extraordinary sow, that for size and breeding was quite the marvel of the meeting. She is within a month of pigging, and in her present high condition would threaten to have a hard time of it. But she was not the only sow exhibited in this state—that is as really breeding. Mr. Skinner, of Aberdeen, showed a pen of three sows, declared to be but seven months and-a-half old, one of which is now very near pigging. This is early maturity with a vengeance, and her owner was repeatedly complimented upon so extraordinary an achievement. The general company appeared to take great interest in this section, and Mr. Mangles' Bendigo breed were in considerable request, all he had for sale being readily disposed of at long prices. But they are really a very pretty useful pig. There was also a Butter

Show, as well as one of Poultry, but the entries for either were not large.

The Show did not even end here. If the Prince Consort disappointed the Society at Aberdeen, his son the Prince of Wales made up for this by his appearance at Edinburgh. His Royal Highness visited the Show ground on both Wednesday and Thursday, sitting very square and well on his horse, and riding the lines through with much apparent interest and attention. On the first day he was really allowed to look about him; stopped his horse at some of the exhibitors' stands, and saw what there was to be seen. But on the Thursday the crowd fairly hunted him, or rather unfairly—for they headed him here, drove him from his point there, mobbed him everywhere--until, had Sir John Warrener's park wall been at all negotiable, the poor young gentleman must have taken it. The Prince, however, stood it well enough for half-an-hour or so, bowed and raised his hat continually, and ended by becoming uncommonly popular with his Northern subjects, as he certainly deserved to be. Although not present, there were rumours of another great man; and Mr. Norton, for his firm of Richmond and Chandler, was honoured with an order for implements from the Emperor of the French. The Scotch nobility were also well represented, and the Dukes of Athole and Buccleuch took, apparently, a very warm interest in the success of the meeting. Unlike the Irish, we do not think that the landlords here can be charged with not supporting the National Agricultural Society of the country.

The opposition, indeed, maintain that Lords and Dukes have a little too much to do with the management of the Society, and that, as a consequence, those of all others most directly interested go to the wall. Undoubtedly the dinner on the Thursday evening would go far to support this. Nothing could have been more injudicious, and, we are sorry to say, nothing more tedious. There were four-and-twenty toasts to begin with. Every one of these was introduced by a preliminary notice from the chair to "fill your glasses," which with one pint of sherry as an allowance, would have needed all the art of the great Wizard of the North himself to accomplish. Then every one of them was honoured with "three times three upstanding," followed by "an appropriate air" from the band. Farther, for two or three hours after dinner none but Lords and Dukes were permitted to speak, until we really began to think we had got by mistake into a Scotch House of Lords. The first ten toasts out of the twenty-four were religiously confined to Dukes, and the Dukes of Athole, Richmond, and Buccleuch equitably divided the speeches amongst themselves. Even down to the next seven—seventeen out of the twenty-four—care was taken to admit no one of less degree than a Right Honourable or a Lord Provost. And then, when half the company had left, and the worn-out reporters had shut up their note-books in despair, the management jumbled in the Judges, the Competitors, the Tenantry, the Manufacturing Interests, and so forth. Let us take one example of this absurd flunkeyism. None can respect more than we do the Duke of Richmond, and none could have been more rejoiced than we were to see His Grace present. In due course he made one of the best responses of the evening for "The Army," and he subsequently proposed "The Clergy of Scotland." When, however, it came to "The Royal Agricultural Society of England," the Duke was called up, evidently against his will, to reply, with other Members of the Council in the room. And again, when they drank "The Successful Competitors," the Duke was telegraphed to speak—with such a successful exhibitor as Mr. Douglas, a Scotchman who has been successful in every part of the United Kingdom, without having a word to say for himself. Fortunately the chairman was no orator, or we should have been there till now. The only really practical, straightforward agricultural speech of the evening was that of the croupier, Mr. Hamilton Nesbit—formerly known as Mr. Christopher—who, with his Lincolnshire leanings still strong upon him, stood up manfully for the associated interests of landlord, tenant, and labourer.

PRIZE LIST.

CATTLE.

SHORT-HORNS.

JUDGES.—Anthony Cruickshank, Aberdeen.
Thomas Hunt, Thornington, Northumberland.
John Thompson, Paston, Coldstream.

Bulls calved before 1st January, 1857, the premium of 20 sovs., to George Shepherd, Shethin, Tarves, and silver medal, to S. E. Bolden, Springfield, Lancaster, as breeder of the best bull (Cherry Duke 2nd).

The second, of 10 sovs., to James Gulland, Newton of Wemyss, Kirkcaldy (Garlick).

The third best, the bronze medal, to William Tod, Elphinstone Tower, Tranent (Young Heir-at-Law).

Bulls calved after 1st January, 1857, the premium of 20 sovs., to John Hunter, Dipple, Fochabers (The Duke).

The second, of 10 sovs., to Thomas Rome, The Baurch, Annan.

The third best, the bronze medal, to Alexander Bethune, Blebo, Cupar-Fife.

Bulls calved after 1st January, 1858, the premium of 10 sovs., to Lord Kinnaird, Rossie Priory, Inchture.

The second, of 5 sovs., to C. Smith and Co., Hillhead, Ardersier (Lord Privy Seal).

The third best, the bronze medal, to G. H. Binning Home, Argaty, Doune (Van Tromp).

Cows of any age, the premium of 15 sovs., to James Douglas, Athelstaneford, Drem (Venus de Medicis).

The second, of 8 sovs., to Wm. Tod, Elphinstone (Volga).

The third best, the bronze medal, to James Douglas, Athelstaneford (Rose of Sharon).

Heifers calved after 1st January, 1857, the premium of 10 sovs., to James Douglas, Athelstaneford (The Lady of Athelstane).

The second, of 5 sovs., to James Douglas, Athelstaneford (The Maid of Athelstane).

The third best, the bronze medal, to the Duke of Montrose, Buchanan, Drymen (New Year's Morn).

Heifers calved after 1st January, 1858, the premium of 8 sovs., to Messrs. Turnbull, Bonhill-place, Dumbarton (Lady of Bonhill).

The second, of 4 sovs., to the Duke of Montrose.

The third best, the bronze medal, to Archibald C. Brodie, Abbey Mains, Haddington (Belle of the Abbey).

BLACK POLLED ANGUS OR ABERDEENS.

JUDGES.—Arthur Glennie, Fernieflat, Bervie.
David M'Culloch, Auchness, Stranraer.
G. Williamson, Auldtown, Turriff.

Bulls calved before 1st January, 1857, the premium of 20 sovs., to the Earl of Southesk, Kinnaird Castle, Brechin, and the silver medal to William M'Combie, Tillyfour, Aberdeen, as breeder of the best bull (Windsor).

The second, of 10 sovs., to the Trustees of the late Robert Scott, Balwyllo, Brechin (President 3rd).

The third best, the bronze medal, to Lord Talbot de Malahide, the Castle, Malahide, Dublin (Lucullus).

Bulls calved after 1st January, 1857, the premium of 20 sovs., to Robert Walker, Montbletton, Banff.

The second, of 10 sovs., to Alexander Bowie, Mains of Kelly, Arbroath.

The third best, the bronze medal, to James Leslie, Thorn, Blairgowrie.

Bulls calved after 1st January, 1858, the premium of 10 sovs., to the Trustees of the late Robert Scott, Balwyllo (Lord Clyde).

The second, of 5 sovs., to George Brown, Westerton, Fochabers (Prince Albert).

The third best, the bronze medal, to Sir James Graham, of Netherby, Bart., Longtown (Hall o' the Wynd).

Cows of any age, the premium of 15 sovs., to John Collie, Ardgay, Forres.

The second, of 8 sovs., to John Collie, Ardgay.

The third best, the bronze medal, to William M'Combie, Tillyfour (Crinoline).

Heifers calved after 1st January, 1857, the premium of 10 sovs., to William M'Combie, Tillyfour (Pride of Aberdeen).

The second, of 5 sovs., to George Brown, Westerton (Rose).

The third best, the bronze medal, to the Trustees of the late Robert Scott, Balwyllo (Bracelet).

Heifers calved after 1st January, 1858, the premium of 8 sovs., to the Trustees of the late Robert Scott, Balwyllo (Heiress).

The second, of 4 sovs., to Wm. M'Combie, Tillyfour.

The third best, the bronze medal, to John Collie, Ardgay.

GALLOWAYS.

Judges.—Arthur Glennie, Ferniefiat, Bervie.
David M'Culloch, Auchness, Stranraer.
William Sproat, Borness, Kirkcudbright.

Bulls calved before 1st January, 1857, the premium of 20 sovs., and the silver medal, as breeders of the best bull, to W. and J. Shennan, Balig, Kirkcudbright.

The second, of 10 sovs., to Sir James Graham, Netherby.

The third best, the bronze medal, to George Reddick, Greenhillhead, Lochmaben.

Bulls calved after 1st January, 1857, the premium of 20 sovs., to Samuel Thomson, Blaiket, Crocketford, Dumfries.

The second, of 10 sovs., to Alexander Jardine, Jardine Hall, Lockerby.

The third best, the bronze medal—*No entry.*

Bulls calved after 1st January, 1858, the premium of 10 sovs., to John Cunningham, Whitecairn, Kirkpatrick-Durham.

The second, of 5 sovs., to John Cunningham, Whitecairn.

The third best, the bronze medal, to James Graham, Meikle Culloch, Dalbeattie.

Cows of any age, the premium of 15 sovs., to John Cruickshank, Cloves, Forres.

The second, of 8 sovs., to John Cunningham, Whitecairn.

The third best, the bronze medal, to John Cunningham, Whitecairn.

Heifers calved after 1st January, 1857, the premium of 10 sovs., to W. and J. Shennan, Balig.

The second, of 5 sovs., to W. and J. Shennan, of Balig.

The third best, the bronze medal—*No entry.*

Heifers calved after 1st January, 1858, the premium of 8 sovs., to Samuel Cunningham, Dunrod Mill, Kirkudbright.

The second, of 4 sovs., to W. and J. Shennan, Balig.

The third best, the bronze medal, to W. and J. Shennan, Balig.

AYRSHIRE.

Judges.—John Baird, of Lochwood, Coatbridge.
Andrew M'Gregor, Ditton, Kilmarnock.
John Waugh, St. John's Kirk, Biggar.

Bulls calved before 1st January, 1857, the premium of 20 sovs., to Sir James Colquhoun, of Luss, Bart., Rossdhu, Dumbarton, and the silver medal, to James Young, Broadholm, New Kilpatrick, as breeder of the best bull.

The second, of 10 sovs., to John Parker, Nether Broomlands, Irvine.

The third best, the bronze medal, to George Paton, Bankhead, Patrick.

Bulls calved after 1st January, 1857, the premium of 10 sovs., to John Parker, Nether Broomlands.

The second, of 5 sovs., to George Paton, Bankhead.

The third best, the bronze medal, to Alexander Crighton, Middleton, Dreghorn.

Cows in-milk of any age, the premium of 10 sovs., to Laurence Drew, Merryton, Hamilton.

The second, of 5 sovs., to John Marshall, Airbles Farm, Dalzell.

The third best, the bronze medal, to George Pender, Dumbreck, Kilsyth.

Cows in calf of any age, the premium of 10 sovs., to Laurence Drew, Merryton.

The second, of 5 sovs., to Robert Kirkwood, High Langmuir, Kilmaurs.

The third best, the bronze medal, to Alexander Murdoch, Hallside, Cambuslang.

Heifers calved after 1st January, 1857, the premium of 8 sovs., to George Pender, Dumbreck.

The second, of 4 sovs., to George Pender, Dumbreck.

The third best, the bronze medal, to H. D. B. Hyslop, Tower, Kirkconnell.

Heifers calved after 1st January, 1858, the premium of 6 sovs., to John Parker, Nether Broomlands.

The second, of 3 sovs., to George Pender, Dumbreck.

The third best, the bronze medal, to James Robertson, Hall, Beith.

HIGHLAND.

Judges.—Robert Anderson, Kildrummie, Nairn.
John Macfarlane, Faslane, Helensburgh.
William Webster, Daill, Islay.

Bulls calved before 1st January, 1857, the premium of 20 sovs., to Allan Pollok, Broom, Mearns, and silver medal, as breeder of the best bull.

The second, of 10 sovs., to the Marquis of Breadalbane, Taymouth.

The third best, the bronze medal, to George and John G. Smith, Minmore, Glenlivet.

Bulls calved after 1st January, 1857, the premium of 10 sovs., to R. D. Campbell, Jura.

The second, of 5 sovs., to Allan Pollok, Broom.

The third best, the bronze medal, to R. D. Campbell, Jura.

Cows of any age, the premium of 10 sovs., to Allan Pollok, Broom.

The second, of 5 sovs., to James, John, and Joseph M'Laren, Muirpersie, Kirriemuir.

The third best, the bronze medal, to the Marquis of Breadalbane.

Heifers calved after 1st January, 1856, the premium of 8 sovs., to R. D. Campbell, Jura.

The second, of 4 sovs., to the Marquis of Breadalbane.

The third best, the bronze medal, to Allan Pollok, Broom.

Heifers calved after 1st January 1857, the premium of 6 sovs., to the Marquis of Breadalbane.

The second, of 3 sovs., to the Marquis of Breadalbane.

The third best, the bronze medal, to the Marquis of Breadalbane.

EXTRA STOCK.

Judges.—Robert Hardie, Harrietfield, Kelso.
George Milne, Haddo, Methlic.
Thomas Stobie, Balneathill, Kinross.

Cross-bred cows of any age, the gold medal, to David Ainslie, Costerton, Blackshiels.

The second, the silver medal, to Robert Hunter, Dalhousie, Chesters, Lasswade.

The third best, the bronze medal, to Robert Hunter, Dalhousie, Chesters, Lasswade.

Cross-bred heifers calved after 1st January, 1857, the gold medal, to John Hunter, Dipple, Fochabers.

The second, the silver medal, to James Stewart, New Market, Aberdeen.

The third best, the bronze medal, to James Stewart, New Market.

Cross-bred heifers calved after 1st January, 1858—*No entry.*

Cross-bred oxen calved after 1st January, 1856, the medium gold medal, to J. and W. Martin, New Market, Aberdeen.

The second, the silver medal, to John Balfour, of Balbirnie, Markinch.

The third best, the bronze medal, to James Stewart, New Market.

Cross-bred oxen calved after 1st January, 1857, the gold medal, to James Stewart, New Market.

The second, the silver medal, to George Brown, Balgarvie, Cupar-Fife.

The third best, the bronze medal, to Robert Husband, Gellat.

Polled oxen calved after 1st January, 1856, the gold medal, to William M'Combie, Tillyfour.

The second, the silver medal, to William M'Combie, Tillyfour.

The third best—*No entry.*

Polled oxen calved after 1st January, 1857, the gold medal, to William M'Combie, Tillyfour.

The second, the silver medal, to William M'Combie, Tillyfour.

The third best—*No entry.*

Highland oxen calved after 1st January, 1855, the gold medal, to James Stewart, New Market.

The second, the silver medal, to J. and W. Martin, New Market.

The third best, the bronze medal, to Allan Pollok, Broom.

Highland oxen calved after 1st January, 1856, the gold medal, to John Armstrong, Townhead, Dumfries.

The second, the silver medal, to James Stewart, New Market.

The third best, the bronze medal, to Allan Pollok, Broom.

EXTRA CATTLE.

HIGHLY COMMENDED.

James Douglas, Athelstaneford, for short-horn cow (Ringlet).

COMMENDED.

Robert Husband, Gellat, Dunfermline, for cross-bred cow.
John Hay, Oldfield, Thurso, for two cross-bred heifers.

HORSES.

STALLIONS FOR AGRICULTURAL PURPOSES.

Judges.—Robert Cossar, Chesterhall, Dunbar.
Thos. Penny.
James Wilkin, Tinwald Downs, Dumfries.

Stallions foaled before 1st January, 1856, the premium of 30 sovs., to Christopher Graham, Inch Farm, Longtown, and the silver medal, to William Baty, Easton, Cumberland, as breeder of the best stallion.

The second, of 15 sovs., to Alexander Sim, Fawells, Keith Hall.

The third best, the bronze medal, to James Lawrie, Mitchelson, Stow.

Entire colts foaled after 1st January, 1856, the premium of 20 sovs., to Peter Crawford, Dumgoyack, Strathblane.

The second, of 10 sovs., to David Riddell, Kilbowie, Duntocher.

The third best, the bronze medal, to Peter Wilson, Middlefield, Lesmahagow.

Entire colts foaled after 1st January, 1857, the premium of 15 sovs., to Andrew Logan, Crossflatt, Kilbarchan.

The second, of 8 sovs., to Samuel Clarke of Menswrae, Kilbarchan.

The third best, the bronze medal, to Colonel Ferguson, Raith, M.P., Kirkaldy.

Entire colts foaled after 1st January, 1858, the premium of 10 sovs., to John Brown, Boghall, Biggar.

The second, of 5 sovs., to Peter Crawford, Dumgoyack, Strathblane.

The third best, the bronze medal, to John W. J. Paterson, Terrona, Langholm.

MARES FOR AGRICULTURAL PURPOSES.

Judges.—John Dove, Eccles Newton, Kelso,
Wm. Forrest, of Treesbank, Hamilton,
Alex. Galbraith, Croy Cunningham, Killearn.

Mares, with Foal at foot, foaled before 1st January, 1856, the premium of 20 sovs., to James Coubrough, Blairtummock, Campsie.

The second, of 10 sovs., to Robert Morton, Dalmuir, West Kilpatrick.

The third best, the bronze medal, to Thomas Smith, jun., Dalfibble, Dumfries.

Mares in foal, foaled before 1st January, 1856, the premium of 15 sovs., to William Jamieson, Straiton, Liberton.

The second, of 8 sovs., to William Stirling, of Keir, M.P.

The third best, the bronze medal, to Robert Walker, Portlethen Mains, Aberdeen.

Fillies foaled after 1st January, 1856, the premium of 10 sovs., to James Adam, Muirpark, Stirling.

The second, of 5 sovs., to James Salmon, Benston, Johnstone.

The third best, the bronze medal, to John Kerr, Morton, Mid-Calder.

Fillies foaled after 1st of January, 1857, the premium of 8 sovs., to Mathew Gilmour, Town of Inchinnan, Paisley.

The second, of 4 sovs., to William Muir, Hardington Mains, Biggar.

The third best, the bronze medal, to William Stirling, of Keir, M.P.

Fillies foaled after 1st January, 1858, the premium of 6 sovs., to Wm. Aikenhead, Shaw Moss, Pollockshaws.

The second, of 3 sovs., to Wm. Park, Balquhanan, Dalmuir, Dumbarton.

The third best, the bronze medal, to John Kerr, Morton, Mid-Calder.

EXTRA HORSES.—(Commended.)

John M'Adam, Rose-street, Edinburgh (for thorough-bred stallion, "Lord Falconbergh.")

Robert Dudgeon, Humbie, Winchburgh (for half-bred colt).

Robert Brown, Park-place, Edinburgh (for cart-horse in harness).

Archibald K. Leitch, Inchstelly, Forres (for Shetland pony).

SHEEP.

LEICESTERS.

Judges.—Thomas T. Cartwright, Tathwell, Lincoln.
J. C. Langlands, Bewick, Alnwick,
Thomas Scott, Broomhouse, Berwick-on-Tweed.

Tups not more than four shear, the premium of 10 sovs., to Thomas Cockburn, Sisterpath, Dunse.

The second, of 5 sovs., to Thomas Cockburn, Sisterpath.

The third best, the bronze medal, to Samuel Wiley, Brandsby, York.

Dinmont or Shearling Tups, the premium of 10 sovs., to Thomas Cockburn, Sisterpath.

The second, of 5 sovs., to Thomas Cockburn, Sisterpath.

The third best, the bronze medal, to Samuel Wiley, Brandsby.

Pens of five Ewes not more than four shear, the premium of 8 sovs., to John Collie, Ardgay.

The second, of 4 sovs., to Thomas Watson, Esperston, Gorebridge.

The third best, the bronze medal, to David Wallace, Balgrummo, Leven.

Pens of five Shearling Ewes or Gimmers, the premium of 8 sovs., to Samuel Wiley, Brandsby.

The second, of 4 sovs., to Thomas Cockburn, Sisterpath.

The third best, the bronze medal, to the Duke of Richmond, Gordon Castle, Fochabers.

CHEVIOTS.

Judges.—William Aitchison, of Linhope, Hawick,
John Douglas, Norton Hall, Melrose,
John Robson, Byrness, Otterburn, Northumberland.

Tups not more than four shear, the premium of 10 sovs., to Thomas Elliot, Hindhope, Jedburgh.

The second, of 5 sovs., to Thomas C. Borthwick, Hopsrig, Langholm.

The third best, the bronze medal, to Thomas C. Borthwick, Hopsrig.

Dinmont or Shearling Tups, the premium of 10 sovs., to James Johnstone, Capplegill, Moffat.

The second, of 5 sovs., to Robert Turnbull, Falnash, Hawick.

The third best, the bronze medal, to James Johnstone, Capplegill.

Pens of five Ewes not more than four shear, the premium of 8 sovs., to James Brydon, Moodlaw, Langholm.

The second, of 4 sovs., to Thomas Elliot, Hindhope.

The third best, the bronze medal, to Samuel Swan, Bush, Jedburgh.

Pens of five Shearling Ewes or Gimmers, the premium of 8 sovs., to Thomas Elliot, Hindhope.

The second, of 4 sovs., to Thomas C. Borthwick, Hopsrig, Langholm.

The third best, the bronze medal, to James Brydon, Moodlaw.

BLACKFACED.

Judges.—George Howison, Rannagielzion, Blairgowrie,
John Macfarlane, Faslane, Helensburgh,
John Lorn Stewart, of Coll, Campbeltown.

Tups not more than four shear, the premium of 10 sovs., to James Watson, Mitchillhill, Biggar.

The second, of 5 sovs., to Thomas Murray, Eastside, Penicuik.

The third best, the bronze medal, to Walter Murray, Walston, Penicuik,

Dinmont or Shearling Tups, the premium of 10 sovs., to Adam White, Blindewing, Biggar.

The second, of 5 sovs., to Thomas Murray, Eastside.

The third best, the bronze medal, to James Watson, Mitchell-hill.

Pens of five Ewes not more than four shear, the premium of 8 sovs., to Allan Pollok, Broom.

The second, of 4 sovs., to John M'Laren, Monzie, Blair Athole.

The third best, the bronze medal, to W. Turner, Gavinburn, Old Kilpatrick.

Pens of five Shearling Ewes or Gimmers, the premium of 8 sovs., to Allan Pollok, of Broom.

The second, of 4 sovs., to Thomas Murray, Eastside.

The third best, the bronze medal, to John Wilson, Crosshouse, Roslin.

SOUTHDOWNS.

Judges.—George Milne, Haddo, Methlic,
Peter Purves, The Grove, Brampton, Huntingdon,
Hugh Watson, Keillor, Coupar-Angus.

Tups not more than four shear, the premium of 10 sovs., to the Duke of Richmond, Goodwood, Chichester.

The second, of 5 sovs., to the Duke of Richmond, Gordon Castle, Fochabers.

The third best, the bronze medal, to James Aitchison, Alderston, Haddington.

Dinmont or Shearling Tups, the premium of 10 sovs., to the Duke of Richmond, Goodwood.

The second, of 5 sovs., to James Aitchison, Alderston.

The third best, the bronze medal, to the Duke of Richmond, Gordon Castle.

Pens of five Ewes not more than four shear, the premium of 8 sovs., to John Hutchison, Monyruy, Peterhead.

The second, of 4 sovs., to John Hutchison, Monyruy.

The third best, the bronze medal, to Robert Scot Skirving, Camptoun, Drem.

Pens of five Shearling Ewes or Gimmers, the premium of 8 sovs., to the Duke of Richmond, Goodwood.

The second, of 4 sovs., to John Hutchison, Monyruy.

The third best, the bronze medal, to the Duke of Richmond, Gordon Castle.

LONG-WOOLLED SHEEP OTHER THAN LEICESTERS.

(All Cotswolds.)

Judges.—J. C. Langlands, of Bewick, Alnwick,
Thos. Laurie, Terreglestown, Dumfries,
Thomas Scott, Broomhouse, Berwick-on-Tweed.

Tups not more than four shear, the premium of 10 sovs., to Lord Kinnaird, Rossie Priory.

The second, of 5 sovs., to Edward Handy, Sierford, Cheltenham.

The third best, the bronze medal, to Edward Handy, Sierford.

Dinmont or Shearling Tups, the premium of 10 sovs., to Edward Handy, Sierford.

The second, of 5 sovs., to Lord Kinnaird, Rossie Priory.

The third best, the bronze medal, to Edward Handy, Sierford.

Pens of five Ewes, not more than four shear, the premium of 8 sovs., to the Duchess of Gordon, Huntly Lodge.

The second, of 4 sovs., to Lord Kinnaird, Rossie Priory.

The third best, the bronze medal, to Robert Scot Skirving, Camptoun.

Pens of five Shearling Ewes or Gimmers, the premium of 8 sovs., to the Duchess of Gordon, Huntly Lodge.

The second, of 4 sovs., to Lord Kinnaird, Rossie Priory.

The third best, the bronze medal, to Robert Scot Skirving, Camptoun.

PIGS.

JUDGES.—Patrick Brodie, Clarilaw, Melrose,
Christopher Cozens, Hatherop, Fairford, Gloucestershire.
Robert Lyall, jun., Carcary, Brechin.

Boars of a large breed, the premium of 8 sovs., to John Harrison, jun., Heaton Norris, Stockport.

The second, of 4 sovs., to William Jamieson, Straiten, Liberton.

The third best, the bronze medal, to John Gordon, of Aitkenhead, Cathcart.

Boars of a small breed, the premium of 8 sovs., to John Dickson, Saughton Mains, Edinburgh.

The second, of 4 sovs., to George Mangles, Givendale, Ripon.

The third best, the bronze medal, to John Harrison, jun., Heaton Norris.

Sows of a large breed, the premium of 6 sovs., to George Robinson, Bolton Mills, Alnwick.

The second, of 3 sovs., to John Harrison, jun., Heaton Norris.

The third best, the bronze medal, to John Mackay, Barrhead.

Sows of a small breed, the premium of 6 sovs., to George Mangles, Givendale.

The second, of 3 sovs., to George Mangles, Givendale.

The third best, the bronze medal, to John Mackay, Barrhead.

Pens of three Boar Pigs not exceeding eight months old, the premium of 4 sovs., to George Mangles, Givendale.

The second, of 2 sovs., to Miss Bell, Woodhouselees, Canonbie.

The third best, the bronze medal, to John Harrison, jun., Heaton Norris.

Pens of three Sow Pigs not exceeding eight months old, the premium of 4 sovs., to James Skinner, Woodside, Aberdeen.

The second, of 2 sovs., to Jonathan Brown, Brewery House, Aspatria.

The third best, the bronze medal, to Miss Bell, Woodhouselees, Canonbie.

BUTTER.

JUDGES.—George Murray, Edinburgh,
Francis Richardson, Edinburgh.

Samples of powdered butter.—(*No Award.*)

Samples of fresh butter, the premium of 5 sovs., to Robert Calder, Millar's Neuk, Kirkintilloch.

The second, of 3 sovs., to Mrs. Smith, Blairmuckhole.

The third best, the bronze medal, to Andrew Macfarlane, Balmuldy, Bishopbriggs.

IMPLEMENTS.

JUDGES.—*Machinery applicable to the working of the soil—*
John Lennie, Lauder Barns, Lauder,
Robert Russell, Edinburgh,
James Stirling, C.E., Edinburgh.
,, *Machinery of the barn—*
George Bertram, Sciennes, Edinburgh,
George Hope, Fentonbarns, Drem,
Jas. Melvin, Bonnington, Ratho.
,, *Articles used in the preparation of food for stock, dairy produce, carts, gates, pipes, &c.—*
John Curror, Comiston, Edinburgh,
Hugh Morton, Leith Walk, Edinburgh,
Robert Patterson, Offers Farm, Stirling.

PLOUGHS.

Two-horse ploughs for general purposes, the premium of 3 sovs., to J. and F. Howard, Bedford.

The second best, the bronze medal, to George Sellar and Son, Huntly.

Trench or deep-furrow ploughs, the premium of 3 sovs., to George Sellar and Son, Huntly.

The second best, the bronze medal, to J. and F. Howard, Bedford.

Subsoil ploughs for two horses, the premium of 4 sovs., to James Kirkwood, Tranent.

The second best, the bronze medal, to George Sellar and Son, Huntly.

Subsoil ploughs for three or four horses, the premium of 4 sovs., to Robert Law, Shettleston, Glasgow.

The second best, the bronze medal, to James Kirkwood, Tranent.

Double mould-board ploughs for forming drills, or bulking, with attachment for lifting potatoes, the premium of 3 sovs., to George Ponton, Woolston, Linlithgow.

The second best, the bronze medal, to James Kirkwood, Tranent.

Ribbing ploughs, the premium of 2 sovs., to James Kirkwood, Tranent.

The second best, the bronze medal, to Peter Macgregor and Sons, Keith.

Two-horse grubbers or cultivators, the premium of 4 sovs., to Coleman and Sons, Chelmsford.

The second best, the bronze medal, to James Kirkwood, Tranent.

Norwegian harrows, or other pulverizing land rollers, the premium of 4 sovs., to David Young, Hassendean, Kelso.

The second best, the bronze medal, to Alexander Jack and Son, Maybole.

Consolidating land-rollers, the premium of 5 sovs., to Robert Wright, Seton, Preston Pans.

The second best, the bronze medal, to the Trustees of Wm. Crosskill, Beverley.

Land-pressers for preparing seed-bed for grain, the premium of 5 sovs., to Smith Brothers and Co., Kinning-street, Glasgow.

The second best, the bronze medal, to Young, Peddie, and Co., Edinburgh and Glasgow.

Ribbing-machines, the premium of 2 sovs., to Mrs. Thomas Sherriff, Westbarns, Dunbar.

The second best, the bronze medal, to James Kirkwood, Tranent.

Harrows for heavy land, the premium of 3 sovs., to J. and F. Howard, Bedford.

The second best, the bronze medal, to James Kirkwood, Tranent.

Harrows for light land, the premium of 3 sovs., to Edward Page and Co., Bedford.

The second best, the bronze medal, to J. and F. Howard, Bedford.

Harrows for covering grass seeds, the premium of 3 sovs., to J. and F. Howard, Bedford.

The second best, the bronze medal, to Edward Page and Co., Bedford.

Common swing-trees or draught-bars for 2 horses, the premium of 1 sov., to William Gray, Cambusnethan, Wishaw.

The second best, the bronze medal, to George Ponton, Woolston, Linlithgow.

Equalizing swing-trees or draught-bars for more than 2 horses, the premium of 2 sovs., to William Gray, Cambusnethan.

The second best, the bronze medal, to George Ponton, Woolston.

Broadcast sowing-machines for grain, the premium of 6 sovs., to George Finlayson, Gighty Burn, Arbroath.

The second best, the bronze medal, to Alexander Dick, Smithy Green, Liberton.

Drill sowing-machines for grain, the premium of 6 sovs., to William and James Hunter, Samuelston, Haddington.

The second best, the bronze medal, to Mrs. Sheriff, West Barns.

Sowing-machines for grass seeds, the premium of 6 sovs., to George Finlayson, Gighty Burn, Arbroath.

The second best, the bronze medal, to Andrew Tyrie, Errol.

Sowing-machines for turnips, the premium of 4 sovs., to George Finlayson, Gighty Burn.

The second best, the bronze medal, to Alexander Jack and Son, Maybole.

Sowing-machines for turnips with manure, the premium of 5 sovs., to R. and J. Reeves, Bratton Iron Works, Westbury.

The second best, the bronze medal, to Nathaniel Smith, Thrapston.

Dibbling or drop sowing-machines with manure, premium, 3 sovs.—*No entry.*

Sowing-machines for mangold, the premium of 4 sovs., to J. and T. Young, Newton Green, Ayr.

The second best, the bronze medal, to Charles Hay, Freelands, Ratho.

Sowing-machines for carrots, the premium of 4 sovs., to Mrs Sheriff, West Barns, Dunbar.

Three-row sowing-machines for beans, the premium of 4 sovs., to Mrs. Sheriff, West Barns.

The second best, the bronze medal, to George Hunter, Kippielaw, Dalkeith.

One-row sowing-machines for beans, the premium of 1 sov., to Alexander Jack and Son, Arbroath.

The second best, the bronze medal, to Andrew Tyrie, Errol.

Machines for pulverizing guano, the premium of 4 sovs., to James Thomson, Stow.

The second best, the bronze medal, to James Mitchell, Fisher's Tryst.

Machines for distributing guano in drill or broadcast, the premium of 6 sovs., to R. and J. Reeves, Westbury.

The second best, the bronze medal, to Mrs. Sherriff, West Barns.

Liquid manure distributing-machines, the premium of 4 sovs., to the trustees of W. Crosskill, Beverley.

The second best, the bronze medal, to Isaac James, Cheltenham.

Liquid manure pumps, the premium of 2 sovs., to the trustees of W. Crosskill, Beverley.

The second best, the bronze medal, to Smith Brothers and Co., Glasgow.

Horse-hoes for drilled grain crops, the premium of 6 sov W. and J. Hunter, Haddington.

The second best, the bronze medal, to Smith and Ashby, Stamford.

Horse-hoes for green crops, the premium of 2 sovs., to William Gray, Cambusnethan.

The second best, the bronze medal, to Jame Kirkwood, Tranent.

Machines for singling turnips, the premium of 4 sovs., to P. M'Gregor and Sons, Keith.

The second best, the bronze medal, to John Eaton, Kettering.

Machines for raising potatoes, the premium of 4 sovs., to Smith Brothers and Co., Glasgow.

The second best, the bronze medal, to Robert Law, Shettleston.

Scythes for general purposes, the premium of 1 sov., to James Smith, Lawhill, Auchterarder.

The second best, the bronze medal, to James Payne, Kirkcudbright.

Reaping-machines for 1 horse, the premium of 10 sovs. to Gardner and Lindsey, Stirling. (No award for second.)

Reaping-machines for 2 horses, premium of 10 sovs., Burgess and Key, Newgate-street, London. The second best, bronze medal, Watson Bell.

Horse-stubble or hay-rakes, premiums of 2 sovs., J. Kirkwood, Tranent. Second best, bronze medal, Page & Co., Bedford.

Hand-stubble or hay-rakes, the premium of 2 sovs., to William Kirkwood, Duddingston, Portobello.

The second best, the bronze medal, to Young, Peddie, and Co. Edinburgh and Glasgow.

Thrashing-machines, adapted for 2 or more horses, the premium of 10 sovs., to Wm. Brothers, Kendal.

Thrashing-machines, with steam-power, the premium of 50 sovs., divided between William Foster, Lincoln; and R. Robey and Co., Lincoln.

Fanners or other machines for winnowing grain, the premium of 4 sovs., to John Richardson, Brunton-place, Carlisle.

The second best, the bronze medal, to John Grant, Lenny Park, Corstorphine.

Fanners or other machines for cleaning grass seeds, the premium of 4 sovs., to John Richardson, Brunton-place.

The second best, the bronze medal, to Robert Reid, Colliston Mill, Arbroath.

Weighing-machines for grain, the premium of 4 sovs., to Herriot and Co., Græme-street, Glasgow.

The second best, the bronze medal, to D. and J. Thomson, Edinburgh.

Weighing-machines, indicating from 1 lb. to 2 tons, the premium of 4 sovs., to A. and W. Smith and Co., Glasgow.

The second best, the bronze medal, to R. Forshaw and Co., Liverpool.

Straw-cutters for hand-labour, the premium of 2 sovs., to Richmond and Chandler, Liverpool and Manchester.

The second best, the bronze medal, to Picksley, Sims, and Co., Leigh.

Straw-cutters for power, the premium of 3 sovs., to Richmond and Chandler, Manchester and Liverpool.

The second best, the bronze medal, to Picksley, Sims, and Co., Leigh.

Turnip-cutters for cattle, the premium of 2 sovs., to Picksley, Sims, and Co., Leigh.

The second best, the bronze medal, to John Wingate, Alloa.

Turnip-cutters for sheep, the premium of 2 sovs., to Picksley, Sims, and Co., Leigh.

Turnip-cutters for sheep, attachable to a cart, the premium of 3 sovs., to Mrs. Sherriff, West Barns.

The second best, the bronze medal, to James Kirkwood, Tranent.

Machines for pulping turnips, the premium of 4 sovs.—*No award.*

Root-washers, the premium of 2 sovs., to the trustees of W. Crosskill, Beverley.

The second best, the bronze medal, to George Porteous, Haddington.

Linseed-bruisers for hand-labour, the premium of 2 sovs., to Richmond and Chandler, Manchester.

Oil-cake bruiser for hand-labour, the premium of 2 sovs., to Richmond and Chandler, Manchester.

The second best, the bronze medal, to Smith and Ashby, Stamford.

Grain-grinders or bruisers for power, the premium of 6 sovs., to Richmond and Chandler, Manchester.

The second best, the bronze medal, to Smith Brothers and Co., Glasgow.

Steaming apparatus for food, the preminm of 5 sovs., to Smith Brothers and Co., Glasgow.

The second best, the bronze medal, to Richmond and Chandler, Manchester.

Feeding-troughs for byres, the premium of 1 sov., to Patrick B. Muir Macredie, of Perceton, Ayrshire.

The second best, the bronze medal, to John Robson, Glasgow.

Feeding-troughs for sheep, the premium of 1 sov., to William Kirkwood, Duddingston.

The second best, the bronze medal, to John Robson, Glasgow.

Sheep-fodder racks, the premium of 2 sovs., to James Kirkwood, Tranent.

The second best, the bronze medal, to Young, Peddie, and Co., Edinburgh.

Churns worked by hand, the premium of 2 sovs., to Robert Tinkler, Penrith.

The second best, the bronze medal, to Philip Hunter, Edinburgh.

Churns worked by power, the premium of 3 sovs., to Wm. Lindsay, Edinburgh.

Cheese-presses, the premium of 2 sovs., to J. and T. Young, Newton-Green, Ayr.

The second best, the bronze medal, to Smith Brothers and Co., Glasgow.

Curd-cutters for dairy purposes, the premium of 1 sov., to J. and T. Young, Newton-Green, Ayr.

General sets of dairy utensils, the premium of 1 sov., to Wm. Lindsay, Edinburgh.

The second best, the bronze medal, to Philip Hunter, Edinburgh.

One-horse carts, with harvest frame, the premium of 4 sovs., to Robert Law, Shettleston.

The second best, the bronze medal, to the trustees of W. Crosskill, Beverley.

Harvest carts, the premium of 4 sovs., to the trustees of W. Crosskill, Beverley.

The second best, the bronze medal, to Robert Law, Shettleston.

Light spring carts, the premium of 4 sovs., to the trustees of W. Crosskill, Beverley.

The second best, the bronze medal, to the trustees of W. Crosskill, Beverley.

Apparatus for conveying implements on the farm.—*No award.*

Divisions, racks, and mangers, for farm stables, the premium of 1 sov., to Adam Jack and Co., Glasgow.

The second best, the bronze medal, to Young, Peddie, and Co., Edinburgh.

Farm harness, the premium of 1 sov., to Hay Downie, Corstorphine.

The second best, the bronze medal to Thomas M. Berry, Leith.

Stone or iron stack pillars, with framework, the premium of 2 sovs., to Young, Peddie, and Co., Glasgow.

The second best, the bronze medal, to John Robson, Glasgow.

Field gates, constructed entirely of iron, the premium of 1 sov., to J. M. Watson and Co., Edinburgh.

The second best, the bronze medal, to J. M. Watson and Co.

Field gates, not constructed entirely of iron, premium of 1 sov.—*No entry.*

Dunghill gates, to open at different elevations, the premium of 1 sov., to James Denholm, Morningside, Edinburgh.

Iron hurdles for cattle fence, the premium of 1 sov., to Young, Peddie, and Co., Edinburgh.

The second best, the bronze medal, to Thomas Perry and Son, Glasgow.

Iron netting for sheep fence, the premiuum of 1 sov., to Young, Peddie, and Co., Glasgow.

The second best, the bronze medal, to Bain, M'Nicol, and Young, Edinburgh.

Light wooden hurdles for sheep.—*No entry.*

Pipe or tile machines for hand or power, the premium of 6 sovs., to Edward Page and Co., Bedford.

Glazed pipes for conveying water under pressure, the premium of 5 sovs., to John Robson, Glasgow.

The second best, the bronze medal, to John Grieve, Prestonpans.

Tiles and pipes for field-drainage, the premium of 2 sovs., to John Robson, Glasgow.

The second best, the bronze medal, to William Brodie, Dunbar.

Glazed socketed pipes for sewerage, the premium of 3 sovs., to Patrick B. Mure Macredie, Perceton, Kilmarnock.

The second best, the bronze medal, to John Robson, Glasgow.

Tools for cutting field drains.—*No entry.*

Tools for cutting open drains in hill pastures.—*No entry.*

General sets of hand implements for the farm, the premium of 2 sovs., to William Millar, Airntully, Stanley, Perthshire.

Apparatus for manufacturing and supplying gas to country-houses and farm-steadings, the premium of 10 sovs., to J. T. B. Porter and Co., Lincoln.

Wheel-barrows of malleable iron, the premium of 1 sov., to William Kirkwood, Duddingston.

Barrows for conveying cooked food, the premium of 1 sov., to John Wingate, Alloa.

The second best, the bronze medal, to John Wingate.

EXTRA IMPLEMENTS, &c.—(COMMENDED.)

The summer-house and rustic seats of J. T. Alexander, Carnoustie.

Hand turnip-drill and sack-holder, and barrow, of James Begbie, Haddington.

Patent washing machine, with wringing and mangling combined, of Thomas Bradford, Manchester.

Patent portable double-cylinder steam engine, of Alexander Chaplin and Co., Cranstonhill, Glasgow.

Patent separator for drawing off the whey from the curd in making cheese, of Robert M'Adam, Silverdale, Newcastle-under-Lyne.

Machine for shaking the grain from the straw, of Peter M'Lellan, Abernethy.

Machine for making cattle-fencing, of Alexander Macpherson, Carstairs, Lanark.

Revolving machine for dressing flour, of Alexander Mather, Edinburgh.

The collection of Francis Morton and Co., Liverpool.—*Specially commended.*

American cast-steel hay and straw forks, of James Payne, Kirkcudbright.

Straw-rope twister, of Robert Robertson, Traprian, Prestonkirk.

Carrot seed, bearding, and clover and trefoil seed, milling, and dressing machine, of Thomas Scott, London.

Mowing and rolling machines, of A. Shanks and Son, Arbroath.

Dynamometer and odometer, of Alexander and George H. Slight, Edinburgh.

M'Kinnell's patent ventilators, of George R. Stewart, Glasgow.

Patent rotary force and lift pumps, of John H. Winder, Sheffield.

THE IMPLEMENT SHOW AND TRIALS.

Our duties as recorders of the leading features of the Implement yard will be comparatively easy; time forbidding at present anything like a critical examination—of the novelties displayed. But of "novelties" in the strictest sense of the term there is at this meeting a marked absence, exhibitors evidently leaning to the safer and more practical view that excellence of workmanship and simplification of details are more to be desired than attempts at the introduction of implements or machines in which mere novelty of arrangement or application is the principal feature. The time is going quickly by, when the mere announcement that "the thing is *quite new*" is to be its passport to purchasers. On the contrary, it is evident from many signs which read aright show that reduction in the number of machines, as well as in the simplicity of their parts and economy in working, are the points to which our agricultural implement-makers have to direct their attention. "Invention" has in many cases ran so "mad" that the re-action has at last, we think, set in. The absence then of "novelties" of the class to which we have alluded is therefore a point of congratulation, rather than of condolence or regret, with all those who are interested in the economical progress of agricultural mechanism.

The Edinburgh meeting excels in interest and the number and importance of its entries all its predecessors. In Glasgow, 1857, the number of implemental "entries" was 610; at Aberdeen, last year, 820; while this year, at Edinburgh, the "entries" are 980; the exhibitors numbering 163. For prizes the sum of £335 was offered, in addition to 87 bronze medals as second prizes.

As many of our readers are aware, the implements and machines exhibited at the Highland Society's Shows are ranged under various sections or classes, according to the nature of their use or application in the field or farm-steading. Whatever virtue there may be in this system of classification judged from a scientific point of view—and in this light we are free to admit that it is possessed of many, and we may say most valuable advantages—still, viewed with reference to the convenience and pecuniary interest of exhibitors, there can be little doubt as to its prejudicial influence. The subject, so often discussed both in our own columns and elsewhere, may to some appear worn out and *effete*, and scarcely worth the time bestowed upon its continued ventilation. Still, representing as we do more particularly the English exhibitors, whose interests are most closely involved in the question, we should feel ourselves wanting in duty if we allowed this—admittedly a pertinent—opportunity to go past without again urging upon the directors of the Society the necessity of at least *considering* the question, and taking evidence, if needful, *pro* and *con*. This *consideration* of the bearings of the system is not too much to ask; to say the least, it will be a courtesy appreciated by those to whom most undoubtedly the Highland Society's meetings are greatly indebted for much of their interest and practical utility. For what, may it be asked, would the implemental departments of the various meetings have been, without the specimens of agricultural mechanism which the English makers have so liberally contributed? If not exactly like, in its results, in "playing Hamlet and leaving out the Dane," certainly the interest of the show-yards would have been most materially decreased. By "continual dropping, water wears away stone;" so possibly the continual "representations" and the "grumblings" to which it gives rise may tend in time to force the subject upon the attention of the directors, and lead to its due and calm "consideration." Thus, in the fulness of time, we come to another and a more convenient system of implemental arrangement.

Reserving a more critical examination of the leading features of the show-yard till another and we hope an early opportunity, we proceed to draw attention to the different sections of implements exhibited, the number of exhibitors in each, and the successful competitors.

In Section First, two-horse ploughs for general purposes, there were 29 exhibitors. Howard, of Bedford—unexpectedly by some, one may remark in passing—competed in this section; he and Page, of Bedford, representing the English exhibitors. Howard took the first prize of £3, and G. Sellar and Son, of Huntley, the bronze medal.

In Section Second, trench or deep-furrow ploughs, there were 7 exhibitors; George Sellar and Son, of Huntley, taking the first prize, and Howard the bronze medal. At the trial in this section, the plough of Page and Co., of Bedford, ran hard upon that of Sellar, which took the prize. Under the head of ploughs, we may remark that, on the whole, the work as executed on the trial field was anything but satisfactory. There was little "easy" work shown, and a deficiency of precision in laying even the furrow-slice at the best angle was noticed here and there. Irregularity in the "sole" was also marked in the working of some. It would materially simplify the trials if "swing" and "wheel" ploughs were tried under separate sections; strictly speaking, they cannot be classed as similar implements. It was a matter of regret to many that the new plough of Hornsby, which so unexpectedly but so worthily won the laurels at the Warwick Show, was not entered for competition. This non-entrance arose from a "misunderstanding," referred to elsewhere. To the merits of this plough—a few specimens of which were exhibited at the stand of Messrs. Hornsby in the yard—we shall hereafter draw the attention of our readers.

In Section Third, subsoil ploughs for two horses, five exhibitors entered; of whom James Kirkwood, of Tranent, took the first prize of £4, and Sellar and Son, of Huntley, the bronze medal.

In Section Fourth, subsoil ploughs for three or four horses, two exhibitors entered; of whom R. Law, of Shettlestone, Glasgow, took the first prize of £4, and James Kirkwood, of Tranent, the bronze medal. The prize plough of Mr. Law presents some features worthy of notice.

In Section Fifth, double mould-board ploughs for forming drills or bulking, with attachment for lifting potatoes, there were twelve exhibitors; of whom G. Ponton, of Linlithgow, took the first prize of £3, and

J. Kirkwood, of Tranent, the bronze medal. The use of potato-lifters, or "branders," as an attachment to ploughs of this class, is rapidly, and we think justly extending, as they do their work very well, and economically; more so, in the opinion of many practical men, than the potato-lifters on the "revolving tine principle," first introduced by Mr. Hanson, and latterly by a pretty numerous body of imitators. The action of the "brander lifter" is certainly — in conjunction with the splitting of the drills by the double mould-board plough—much more gentle, and more closely resembles the manual labour system, where there is the mind of the operator to control the action of the hand-grip or fork, than the quick cutting action of the revolving tines of the machine above alluded to. Indeed the violent action of the latter machine is pretty well indicated in the netting attached to Hanson and the lattice-work of other inventors (exemplified in more than one in the show-yard), which has for its object the catching of the potatoes thrown aside, and preventing them from being cast too much out of the way. In the implements in the section now under consideration the brander is attached to the hinder end of the sole of the plough, and consists generally of three bars, two stretching outwards, the third and central being straight. They are all placed at an angle to the line of sole; the earth, as it is split from the drill, passing up the inclined bars, falling through between them, and leaving the potatoes exposed on the surface. The outside bars—made, generally, flat and somewhat sharp-edged—serve to cut up the earth, leaving it open on the sides, well exposing the potatoes.

In Section Sixth—ribbing ploughs—four exhibitors were entered, of whom James Kirkwood, of Tranent, took the first prize of £2, and Messrs. McGregor, of Keith, the bronze medal. Kirkwood's implement is worthy of notice from the ease with which the ribbing-coulters can be taken out of and placed in work by a simple lever movement, placed within easy reach of the driver. It has a deservedly high reputation.

In Section Seventh—two-horse grubbers or cultivators—there were twenty-two exhibitors, of whom Coleman, of Chelmsford, took the first prize of £4, and James Kirkwood, of Tranent, the bronze medal. Coleman's excellent *cultivator*—as it is somewhat loosely designated—is too well known to need description here. Messrs. Young, Peddie, and Co., of Edinburgh, exhibited two forms of Tennant's well-known grubber.

In Section Eighth—Norwegian harrows, or pulverizing land-rollers—there were fourteen exhibitors, of whom David Young, Kelso, took the first prize of £4, Messrs. Jack and Son, of Maybole, the bronze medal. It would have been better had the Norwegian harrows been classed separately from the pulverizing land-rollers, of which Crosskill's clod-crusher and Cambridge's roller were representations. The Norwegian harrow is an implement to which considerable attention is paid by Scotch makers; it seems better adapted to the working of the soil generally met with in Scotland than Crosskill's clod-crusher, which is more particularly adapted to the heavy clays of England—a class of soil in which it has effected wonders, opening up, in many, a new feature of fertility, to which, without it, they could have made little progress. Perhaps one of the most characteristic forms of the Scotch make of Norwegian harrows is that of Mr. Kirkwood, of Tranent, who exhibited in the section. The frame in this is made entirely of wrought-iron; up to a certain point the frame is rectangular, but in front the side-bars are produced and led inwards, till they meet in a point. At this point the stud is supported which carries the front wheel, capable of adjustment by its stem, so as to raise or depress the front end of the frame. The hinder part of the frame is supported by a cross shaft provided with two crank arms, one at each end; the extremities of these carry pins on which the bearing-wheels run. The cross shaft is worked by a lever placed within reach of the attendant. By moving this, the crank-arms of the cross shaft are raised or depressed, and the wheels with them, now depressing the frame, or raising it from the ground, and decreasing or increasing the depth to which the revolving tines work. These tines are formed on central wheels or studs, six to each: these are strung, as it were, upon three axles, placed parallel to each other; the teeth or tines interlace with each other as they revolve, thus keeping them clear from all adhering soil, &c.

In Section Ninth—consolidating land-rollers—there were eighteen exhibitors; of whom Robert Wright, of Seton, Prestonpans, took the first prize of £5, and Crosskill the bronze medal. Great length of roller, observable in some of the implements exhibited, presents difficulties in working over every portion of the soil, which shorter lengths would obviate: a long roller is also more difficult to turn at the headlands than one which is shorter, or made up into shorter lengths. Simple as the construction of this implement appears, there are points connected with it which, if neglected, will lead to non-economy of working.

In Section Tenth—land-pressers for preparing seed-bed for grain—there were six exhibitors; of whom Messrs. Smith, Brothers, and Co., of Glasgow, took the first prize of £5, and Messrs. Young, Peddie, and Co. the bronze medal.

In Section Eleventh—ribbing machines—Mr. Sheriff, of West Barns, Dunbar, took the first prize of £2, and T. Kirkwood, of Tranent, the bronze medal. These were the only two exhibitors under this section.

In Section Twelfth—harrows for heavy land—there were ten exhibitors, of whom Messrs. Howard took the first prize of £3, and J. Kirkwood the bronze medal.

In Section Thirteenth—harrows for light land—nine exhibitors entered; of whom, Edward Page and Co., of Bedford, took the first prize of £3, and Messrs. Howard the bronze medal.

In Section Fourteenth—harrows for covering grass-seeds—there were eight exhibitors; of whom, Howard took the first prize of £3, and Messrs. Page the bronze medal. Of this class of implements we may remark, in passing, that the species of "invention" which strives after novelties is pretty well exemplified in many of its specimens. Some forms of "chain harrows" are almost useless in practice; the land seldom being in that condition in which their peculiar mode of operation can be made available. It is probable that no more efficient implements can be met with than in one or two discarded because old-fashioned forms; a reason too often considered sufficient to cause an old and well-tried implement to give way to one of more pretentious design and arrangement. It is possible that in more than one class of implements we may see a retrogressive movement, a fleeing from new, and a returning to old, principles of operation. We see, indeed, the beginning of this movement in more than one section already.

Decreasing space warns us to conclude, and defer our further notes. We have just enough left for us to say that, while to an unusual extent Scotch makers are well represented at this great meeting, the well-known English enterprise was not behind in its display. Hornsby, Clayton and Shuttleworth, Garrett, Howard, Richmond and Chandler (this firm booking for the *eleventh* consecutive time at the Society's show the largest share of the prizes for such machines as chaff-cutters, &c., for which they are so distinguished), Coleman, Crosskill, Page, Edward and Co., Robey, Picksley, Sims and Co., Samuelson, Smith and Ashby, Bentall, and Williamson, being all well represented.

THE YORKSHIRE AGRICULTURAL SOCIETY.

MEETING AT HULL.

It is quite pleasant to see the affectionate embrace of the two sisters, Agriculture and Commerce. It is now eighteen years since the elder sister from the country visited her younger upon the banks of the Humber. In 1841, Agriculture was entertained with cordial greetings and sumptuous displays on the Dock Green, in the very heart of the town, where now great ships ride at ease, discharging and receiving cargoes from and to the continent of Europe. Wonderful change! Commerce has enlarged her domains. The old boundary lines, the very hamlets of Hull, are now covered with docks and quays and warehouses, while the dwellings of the Many-handed stretch far beyond. Nor could the retinue which agriculture brings with her, indicative of a like astounding increase, be located in 1859 where it was in 1841, even though the Dock Green were green with grass, instead of copper.

Very instructive was the interview between the sisters. With the naïve partiality of mothers, they discussed of their children's growth, characteristics, and promise; and dwelt, in a manner that cannot be forgotten, upon those potential influences which had been unto them as the pillar of fire by night, and of cloud by day.

The Yorkshire Society has increased amazingly in strength. In 1838, when it held its first meeting at York, there were 301 entries, and now we find 105 entries of cattle, 82 of sheep, 68 of pigs, 240 of horses, 252 poultry, 5 of grain and wool, and 1,029 of implements; in all 1,781. May success ever attend upon these useful meetings! Indeed, while the trials of implements are so admirably conducted, and such care is taken to impart good counsel to the purchaser, and due encouragement to the manufacturer, by the employment of men thoroughly qualified as judges, the Society cannot fail, as the friend of both, to maintain the firm respect and cordial support of the district over which it presides.

The show-yard, situated some little way out of Hull, on the Anlaby road, and accommodated by the North Eastern Railway Company with a siding, and by the Telegraph Company with a wire for the speedy transmission of messages to the town, was very spacious, and arranged with a special view to the comfort of stock, the convenience of exhibitors, and the requirements of the public. The provision made to facilitate the labours of the stock judge was exceedingly perfect.

To begin with the machinery, never, perhaps, have the reaping machines had a better trial than they had here. We shall, therefore, give a little more space than ordinary to a description of this practical branch of the meeting.

The trial commenced on Monday, about five miles from Hull, on a field of beans, in the occupancy of Mr. Clark, of Hessel. The competing machines were eight in number: Burgess and Key's, Crosskill's Bell's, a machine of novel construction invented by Dr. Eddy, a one and two-horse reaper of Cuthbert, Wray's of Bedale, Samuelson's, and Wood's combined reaping and mowing machine. Burgess and Key's, and Crosskill's Bell's, which are self-delivering, are too well known to need description. Samuelson's is also a self-delivering machine. He has adopted an automaton rake, which is made by an ingenious contrivance to clear the platform in a more or less effectual manner. Wray's is a machine on the old Hussey construction, with the ever-objectionable appliance of a screw-gearing to drive the cutting-bar, the spindle, conveying motion from the travelling-wheel, being vertical. The American machine, invented by Wood, has been noticed, and Cuthbert's likewise, which is an improved Hussey, without the tipping platform introduced by Dray. Dr. Eddy's machine, manufactured and exhibited by Hughes of Loughborough, consists of a frame, square or nearly so, one side of which is formed by the cutting-bar, which is five feet in length; one-half of the space thus enclosed is occupied by a stationary platform inclining upwards to the left side. Through slits in the platform, teeth of sheet iron work, appearing and disappearing: these are rigid with the cutting-bar. The grain that falls upon the platform is thus guided into the space between it and the travelling-wheel on the right, which is guarded off, and passes out under the back frame, when the platform catches its running bearing.

The work made by this machine in the beans was not good, in consequence of the space being too limited to void the material. For the same reason it failed in the barley. Samuelson's worked fairly; but the action of the rake, though very commendable, was far from perfect, and added very considerably to the work of the horses. Burgess and Key's did not work so well as was expected, nor Bell's; and the general opinion was decidedly in favour of Cuthbert, especially the one-horse machine, which, with a man to guide the corn from the platform, and another to lead the horse, was cutting smartly, and delivering well for the binders, with a velocity which excited general admiration.

On Tuesday the same machines met to cut down an eight-acre field of barley—a nice upstanding crop. The work was equally divided, and Crosskill's Bell's, with the horses pushing it before them, set it out in splendid style. This done, it fell into its own place, and made beautiful work. The cut was wide, and exceedingly low and clean, and the swathe was laid with great evenness. But the delivery was imperfect in the barley, and very imperfect in the long wheat.

Burgess and Key's did not make so good or clear a cut as Bell's, nor was the swathe so cleverly cut for binders; but it went on at an easy, continuous pace, without any delay, working very well with two horses, with one driver, and one man to keep all clear about the platform.

Samuelson's, with two horses and one driver, made very uncertain, tangled work, leaving ears one way, and tails another.

Wood's machine, with one driver, and one man to rake off the platform, seemed comparatively easy draught for two horses, which walked along at a slow pace. The cut was tolerably good and clear, though not, as will be seen by a reference to the appended table, very wide. The delivery by hand is very defective, a confused, tangled swathe being left for the binders to make the best they can of.

Wray's reaper took a small cut, and employed one man putting off with rake, and one man and one lad to lead two horses. The work was trying for the horses, the stubble showed a defective cut, and the grain was so indifferently laid that eight binders had hard work to keep up, notwithstanding the length of time taken to deal with the plot.

Cuthbert's two-horse machine made, with the exception of Crosskill's, the cleanest cut in the field, carrying about 4 feet 6 inches. The stubble was beautifully left, and the barley was bunched by a side delivery in very nice order for binding. The work was done with great rapidity, two men being on the machine, one man and one boy driving, and six binders following. The one-horse machine, carrying one man, surprised every one by its rapid clever volutions, close level cut, and orderly bunching.

The following table will show at a glance those points of comparison which it is the object of these trials to discover :

NAME.	Reputed Cut.	Actual Cut.	No. of Horses.	Men employed.	Boys.	Binders.	Time.	Price.	
	Ins.	Ins.					Minutes.	£	s.
Burgess & Key...	60	52	2	2	0	0	29	42	10
Crosskill........	81	68	2	2	0	0	33	42	0
Samuelson	60	42	2	2	0	0	not done	32	10
Dr. Eddy	60	42	2	1	0	0	not done	25	0
Woods	60	44	2	2	0	7	42	35	0
Wray	54	42	2	2	1	8	60	16	0
Cuthbert	60	54	2	3	1	6	37	25	10
Ditto	60	40	1	1	1	6	39	22	0

The four first are self-delivering, and have, except Samuelson's, the sickle-edged knife. Wood's has a sickle-edged knife. Cuthbert and Wray's knives are plain.

The machines then moved across the road into a stout standing crop of wheat, upon the same farm. Bell's went first to set out the work, which it did with difficulty. Wood's did fair work, but left the swarth in sad disorder. Wray's worked with great difficulty, both for man and horses, cutting and laying the grain indifferently. Samuelson's cut pretty freely, but the action of the rake was very imperfect, entailing extra labour upon the binders. Burgess and Key's pursued its quiet way at an even pace, cutting pretty well, and laying the swarth in perfect style. Bell's fared worse in the long wheat without the third belt than it did in the barley, so much so, that one man was kept continually at work to clear the platform, which he did only with the greatest exertion. Cuthbert's two-horse machines, with side delivery, made extremely good work ; but the one-horse machine was the admiration of every one, cutting its way through the heavy crop in splendid fashion, leaving a clear short stubble, and compact orderly bunches, good sheaf size.

No one was surprised, and every one was satisfied when the award of the judges became known, the prize of £20 being divided equally between this little one-horse machine and Burgess and Key's. These two machines would not, however, have been placed upon this equality, had the society left the judges unrestricted as to the mode in which the money was to be awarded. They would probably have made the distinction of first and second prize. Possibly they might have given £15 to Burgess and Key's, and £5 to Cuthbert.

It is not to be supposed that gentlemen of their discernment should under-rate the superior value of a self-delivery, to obtain which in perfection such strenuous effort is being made. Well as Cuthbert's machines performed, it must be borne in mind that they were worked by their owners, who of course strained every nerve to secure their success, and made, as did Wray, superhuman efforts to keep the platforms clear. In using these machines the question is, can we depend upon our men for the same watchfulness, care, and untiring effort? The self-delivering machines work without it, and that is the reason, although they cost double the money, why they are so much employed. Machinery is required to supersede human labour, and premiums should be offered and awarded accordingly. Whilst holding these opinions we quite justify the award, because it would have been highly improper to have given the whole prize to Burgess and Key's, when in point of cut, time, power, price, and construction the little machine discovered in some senses a decided superiority, which will render its adoption in heavy land districts, and where farms are small, a matter of certainty. The makers will do well to give it their whole attention. If they can make it self-delivering, and at the same time confine it pretty nearly to its present weight and size, they will confer a great boon upon themselves, and a greater upon the public.

This having been the most satisfactory trial of reaping machines we have known, considerable space has been given to its report. We now proceed to the plough and harrow trials.

About one mile from Hessle, on the road to Hull, a clover lea was set aside for these. The ground was so extremely hard, and the nature of the clay so remarkably tenacious, that the trial of ploughs was not at all satisfactory. The swing ploughs tried were all worsted. Howard's general purpose plough received the first prize, and Busby's the second. Howard's general purpose plough was entered for the contest amongst the heavy land ploughs, turning a furrow 11 inches by 9 inches, with four horses ; but the coulter fastening giving way, the plough was disqualified. Busby took the first prize in this class, and Cook, of Lincoln, the second. The draughts were not taken. It will not be right, however, to pass unmentioned Hancock's pulverizer, a strong iron plough, with three sharp shares, a little in advance of each other, set at different depths. This implement broke up and pulverized the clay soil to a depth of some 7 inches with two horses, with comparative ease and great efficiency. We should doubt its value in foul land, because we all know the difficulty of getting rid of "twitch" cut into small pieces ; but where land is free from twitch, and particularly in cultivating the intervals between beans or those of wheat sown on the Lois-Weedon system, this implement would be invaluable. It has several fittings, and is convertible from a simple parer to a cultivator, or a plough and cultivator combined. It received a special prize of £3.

In the harrow trial we noticed Howard's and Bentall's heavy harrows working extremely well. Howard's by reason of their steady searching cut stood first, and Bentall's were highly commended. The light harrow prize was awarded to Bentall's and Busby's were highly commended.

We now pass to our notes made in the yard upon those novelties and special improvements which attracted attention.

The silver medal of the Society was awarded to Isaac Spight, of Brigg, for a horse-hoe. Its working width is 7 feet, taking ten rows of wheat and five of turnips. The shaft which carries the hoe-levers sends at each extremity an iron rod up through a slot in the upper framework. The head of this rod is T-shaped, and furnished with rollers, which travel on flat surfaces, and so secure to the hoes one uniform and easily modulated motion to either side. The hoes are screwed to mortised heads, which slide upon the levers, and are thus capable of being adjusted to any desirable position. Their pitch is nicely arranged by lever. The details are all practical and simple, the workmanship is exceedingly good and strong, and the price (with double sets of hoes and weights) is £15.

Messrs. R. and J. Reeves, of Westbury, for the best drill for turnips, &c., on the ridge, and for the best broadcast manure-distributor, received two prizes. The manure-distributor is the simplest and cheapest implement of its kind. It casts the manure over 6 feet of ground, and by additional troughs can be made to dispense it in three or four streams for ridge-work. The box is furnished with revolving notched cylinder, stirrers, and slides; price £10. The ridge-drill, with rollers, manure-box, &c., all strong and good; price £12.

The drill for sowing turnips on the flat, and the general corn drill made by J. Coultas and Son and J. Coultas, jun., of Grantham, deserves notice on account of good workmanship, efficiency, and cheapness.

B. Kitmer, of Louth, received a prize of £3 for a machine for blowing and sifting corn, price £10. The screen behind, presenting considerable surface, consists of two riddles rigid in the same frame, the upper one of which is half the length of the bottom, and is furnished with a transverse trough to carry off the white heads on to one side. The motion is particularly easy.

A prize was likewise given to Marshalls, of York, for a Cambridge roller with seed drill attached. Price £15. The roller is the large size. The drill behind has two compartments; one above to hold seed, with slides to regulate its descent to the compartments below, where the cupped barrels revolve. The gearing is very simple, and the whole implement wonderfully cheap.

One of the most striking things in the yard is Winder's rotary force-pump, manufactured at Sheffield. Within a strong bolted case revolve two oval wheels, 5½ inches in diameter and 2¾ inches in thickness, working into each other. The water enters the case at the bottom; the stream then divides, each wheel drawing and filling the chamber. The fluid is thus carried round to the upper part of the case, and forcibly ejected by the coming together of the outer diameter of the wheels in their rotation, thus giving a continuous flow, and effecting a powerful vacuum. The same invention is applied to steam engines, but here the leading cogs are acted upon by springs of steel or India-rubber. The steam is admitted by openings at the upper side of the case. The pistons are forced round by the pressure, and the steam ejected from the lower outlet.

A small hand-pump, with a suction pipe 1¼ in. diam., which forms a capital garden or fire-engine, will discharge 1,200 gallons of water per hour.

We have also to notice Hodson's brick machine, of Hull, which presents some improvements, showing a saving of some 4s. per 1,000 in the making of bricks The clay, being thoroughly ground in the pug-mill, it finds its way down to the mould at bottom, into which it is forced. It is received upon a poised platform, which, when the wire cuts off the brick from the column of clay above, sinks with it, and rises again on the removal of the brick by a boy. The contrivance is ingenious; but what we saw at Warwick—bricks being made of dry dust—spoils us for the difficulties that attend upon the preparation of clay and wire drawing.

Four-sevenths of the exhibitors were men of the county, the principal of which were the Trustees of Messrs. Crosskill, of Beverley, and Messrs. A. and E. Crosskill, of the same place, who made a very capital display with prize clod-crushers, cheap one-horse carts, liquid manure carts, and wheels and axles; Sawney, of Beverley, who had a very large collection of all sorts, and Busby, of Bedale, with prize ploughs, harrows, hoes, &c. The engineering ability of Lincoln was well represented by Messrs. Clayton and Shuttleworth, who showed their combined thrashing machine, portable engine, and straw elevator, at work, than which there are none others more deservedly popular. For excellence and efficiency they are everywhere recognized as farmers' implements. Ruston and Proctor, also, of the same place, well maintained their reputation; while Tuxford and Sons, of Boston, with their best of engines, and an improved combined thrashing machine, with Boby's screen adapted, were surrounded with admirers. Bentall and Coleman were also there, with their useful cultivators; and Hornsby's prize plough (which, owing to some mistake or other, did not meet Howard's in competition) was there, bearing on an unsullied breast the trophies of Warwick.

The Shorthorn show of cattle at the Yorkshire Society's Meetings always ranks as one of the highest and best in the United Kingdom. It is the chief locality of the breed, for it connects as to a centre the breeds of the counties of Durham, Northumberland, Cumberland, Lancaster, York, Nottingham, Lincoln, Rutland, and Leicester—districts where they are exclusively bred, and that with great care and judgment. The celebrity of the Show may be evidenced by the beautiful display always seen of individual specimens of the breed, and the competition amongst our most eminent breeders. Colonel Towneley has for several years given to it his best patronage, and this year he comes with unusual splendour, and in great force. We do not recollect to have seen such a splendid lot of animals produced by any individual breeder at any show equal to them. We begin with Master Butterfly 5th, a beautiful animal, of a good red colour; perhaps somewhat elongated in frame, but it is in good form. He receives a commendation. We next have Royal Butterfly, roan, who takes again, as he has done everywhere, first prize. We have so recently described him that we shall only say he has suffered nothing from much travelling and the vicissitudes of shows. He looks as beautiful in form and feature as at Warwick. In class 3 (bull calves) we find three exceedingly good animals, certainly too far advanced to be called calves. No. 25 is Bow Bearer (roan), who takes 2nd prize. No. 26, Burnley, a very pretty fellow, a beautiful roan, with plenty of good points to make a first-class animal: he takes 1st prize; and No. 27, Broad Back, also a roan of highly commendable frame. All these are the Colonel's. In class 4 he has Emma, a good red, with a remarkably deep compact full form, of broad cylindrical shape, on rather short legs; her bosom and breast-end are unequalled; her girth is altogether in true form; her good broad back and hips are correct in form; her tuts are very good, but not too heavy; her flank and thighs capital, and dug and teats becoming a milch cow: she takes 1st prize, with great credit, her adversary being a good one. In class 5 we have Alice Butterfly, red, in good character and form. In class 6 we have Pearl, red, a very handsome, proportionate, and symmetrical heifer, taking 2nd prize; and Fidelity, white, a superb heifer, more beautiful in form, and of deeper symmetrical proportions than usual. She takes 1st prize without dispute. In class 7, yearling heifers, we have Precious Stone, white: she takes 2nd prize, and running near for the 1st; and Rose of Lancaster, roan, having the same contour of frame, both full in form, and good. In class 8 (heifer calves), we miss the Colonel; as also in class 9 for fat oxen; but in class 10, for fat cows, we find Beauty's Butterfly—certainly one of the most splendid and best formed cows we have seen for some years. She is nearly perfect in form; we could only discover one defective point, *i.e.*, a slight contraction in frame, or defect between her hips and tuts. We have heretofore said that the Colonel's herd have manifested a slight contraction in frame immediately behind the shoulders, about the third and fourth ribs; but this cow possesses one of the broadest spines and greatest rotundity of girth we ever saw; her depth is wonderful, and the level fulness of her sides and underneath parts is exceedingly good. Her girth is nearly nine feet; we fear to commit ourselves to name her weight, but it must considerably exceed 100 stones imperial—the prize. In the Extra

Stock Class we have Diadem, another very superior animal, with exceedingly good underneath parts, and excellent frame—commended. Thus we have the Colonel showing thirteen most splendid animals, with which he has taken no less than six first prizes, three second and one commendation ; this out of nine classes. The Aylesby (Mr. Torr's) herd appears in good representation, and takes a second prize with *Wave Hope* in the Heifer Calf Class, and a high commendation in the Bull Calf Class. This whole class was commended.

The Warlaby (Mr. R. Booth's) herd is beautifully represented, Queen Mab appearing in all her royal glory and popularity. As she took a most prominent position at a recent show (Hartlepool) as the best short-horn, in competition with Royal Butterfly and others, we took especial notice of her. We still hold to Royal Butterfly, as we did at Warwick. Queen Mab is by no means perfect. She has a thin neck and narrow chine and shoulders ; her plaits are good, underneath parts good, thighs slight, and flank defective, rump defective, twist good ; her general frame not perfect or symmetrical enough for our taste.

Mr. Ambler shows a fine cow, Woodbine, roan, with splendid hips and tuts, very broad and fat, with deep full thighs, her frame large and proportionate ; but her fore-quarters are not equal to her hind-quarters. His yearling bull, Prince Talleyrand, takes 2nd prize, and is in every respect a first-class animal.

Capt. Gunter exhibits several excellent animals. His Duchess 77th, in the yearling heifer class, received 1st prize. She has a well-formed cylindrical frame, of somewhat slender proportions ; her girth not large. Beside her we have Duchess 78th and Duchess 79th and Red Blossom, all very handsome and good in frame and character, and by the 6th Duke of Oxford. This class was generally commended. His Moss Rose, in the two-year old heifer class, is a capital animal, having splendid hind quarters, not good in girth, and her head and horns common looking. Capt. Gunter also received a commendation with Princess Royal, a beautiful heifer.

Lady Pigot exhibits some beautiful specimens of the breed. The Duchess of Gloucester 2nd has splendid hind-quarters, but chine and shoulders thin. Her two yearling heifers are very superior. She receives a commendation with Duchess of Gloucester 2nd, bred by Jonas Webb. Mr. H. Smith and Mr. W. Smith show some splendid animals quite in character with their reputed breed. Sir C. R. Tempest, J. R. Middleborough, J. Hall, Lord Walsingham, Lord Feversham, also sustain the show most creditably. Mr. W. B. Cox wins the first prize in the Aged Bull class with Statesman, a capital bull, with a deep full frame, but not very noble in his appearance ; we like prize bulls to possess some grandeur about them. "Butter bulls" are highly serviceable animals no doubt ; but a prize animal must have some nobility of character—if not, he is but a common animal, and nothing more.

The sheep were almost exclusively confined to Leicesters and longwools, very few short-woolled sheep appearing. The several classes of rams were well contested, and many splendid animals were shown. Mr. Sanday and Mr. Pawlett again came into competition, but with a different result to that at Warwick. Two prizes were awarded to rams from Mr. Sanday's flock, while Mr. Pawlett's merely received a commendation. Mr. Sanday's two-shear beat Mr. Pawlett's three-shear, thus reversing the judgment at Warwick. Mr. Borton shows several first-class sheep ; Mr. Simpson, Mr. Abraham, the Hon. G. Lascelles, Mr. Marris, Mr. Beal, and M. and J. Horsely, show very superior sheep.

The classes of ewes were unusually good and numerous. Eleven pens of shearling ewes, and nine pens of aged ewes, each pen containing five animals, were exhibited. Mr. Simpson's pen of ewes were greatly admired ; their forequarters were admirable and rumps good. Mr. Gofton's were smaller, but very compact and handsome. Mr. Holliday's were exceedingly good, but Mr. Lovel's only commendable. In the shearling ewe class Mr. Jordan showed a very complete and handsome lot, which took first prize ; Mr. J. Simpson's capital lot taking second place. In the shearling wether class Mr. Jordan again shows some splendid animals, with which he again takes first prize ; Mr. Lovel taking second place with a very superior lot. There were seven pens in the class, of a highly commendable character.

Amongst the pigs, we noticed some extraordinary animals. Mr. Hickman's sow of the large breed is an immense creature : she had a litter of pigs in December, is 3 years 3 months old, and weighs alive 11 cwt. She takes first prize. Mr. Wainman's boar is immensely large. Mr. Richardson shows two exceedingly good animals, his Eclipse winning first prize. Mr. Harrison's second prize boar is of excellent character and form. Mr. Wainman's sow is very large, and in good form, and he takes second prize in competition with the immense sow of Mr. Hickman's.

Messrs. Cole and Walker show a beautiful specimen of the small breed, excellent in frame and quality. Lord Wenlock's Cato by Brutus takes first prize, Mr. Pearson's Harry second prize ; class commended. Viscount Galway's twenty-month sow is a fine animal of its class, square level back, capital crop ; takes first prize. Mr. J. Coate's Miss Emily, in Class 25, of any breed, is a capital sow ; so is Mr. Ward's Lady Ann, but not so nicely proportioned. Miss Watson, Mr. Preston's sow, takes second prize in Class 24 ; class highly commended. Lieut.-Col. Towneley again takes a prize for best small breed sow.

We could not repress a smile, in looking over our catalogue, to find such a singular selection of names to boars and sows—Albert the Second, Billy Bradley, Tom Pinch, Young Duchess, Betty, Matchless ; then again Cato, Cassio the Second, Peter, Harry .... Dewdrop, Violet, Julia, Susan, Poor-men's-friend, Miss Watson, Miss Clayton, Lady Sarah, King of the West, Duke of York, Caswell, Wonder, Prince, Young Barnaby, Mark Tapley, and so on.

PRIZE LIST.

CATTLE.

JUDGES.—Mr. Cattle, Dormont, Lockerbie.
Mr. Crofton, Holywell, Durham.
Mr. Drury, Holker, Newton, Catterick.

SHORT-HORNS.

Bulls of any age, first prize of £25, to W. B. Cox, Pickering (Statesman).

Second, £10, to Lord Feversham, Duncombe Park, Helmsley (Prince Imperial).

Commended.—Wm. Smith (Albus) ; Lieut. Col. Towneley (Master Butterfly 5th).

Yearling bulls, first prize of £20, to Lieut.-Col. Towneley, Towneley Park, Burnley (Royal Butterfly).

Second, £10, to H. Ambler, Watkinson Hall, Halifax (Prince Talleyrand).

Commended.—T. Jolly (Hector).

Bull calves, upwards of five months old, first prize of £10, to Lieut.-Col. Towneley (Burnley).

Second, £5, to Lieut.-Col. Towneley (Bow Bearer).

Highly commended.—W. Torr (Royal Hope).

Cows of any age in calf or milk, first prize of £15, to Lieut.-Col. Towneley (Emma).

Second, £5, to H. Ambler (Woodbine).

Highly commended.—L. Thompson (Honeysuckle).

Three-year-old cows in calf or milk, and having had a calf, first prize of £10, to R. Booth, Warlaby, Northallerton (Queen Mab).

Second, £5, to J. R. Middlebrough, South Milford, Milford Junction (Royal Dairy).

Two-year-old heifers in calf, first prize of £10, to Lieut.-Col. Towneley (Fidelity).

Second, £5, to Lieut.-Col. Towneley (Pearl).

Highly commended.—Captain Gunter (Moss Rose); J. R. Middlebrough.

Yearling heifers, first prize of £10, to Capt. Gunter (Duchess 77th).

Second, £5, to Lieut.-Col. Towneley (Precious Stone).

The class generally commended.

Heifer calves, upwards of five months old, first prize of £5, to Sir C. R. Tempest, Bart., Broughton Hall, Skipton (Harmless).

Second, £3, to W. Torr, Aylesby (Wave Hope).

The class generally commended.

Fat oxen under four years old, first prize of £10, to G. Taylor, Sowerby Cottage, Bridlington.

Second, £5, to S. Wiley, Brandsby, York.

Commended.—Mr. J. Chrispin.

Fat cow of any age, prize of £5, to Lieut.-Col. Towneley (Beauty's Butterfly). No other entry.

CATTLE OF ANY BREED.

Cows for dairy purposes, first prize of £5, to T. Tutin, Winestead, Patrington.

Second, £2, to W. Stead, Owlerton, Sheffield.

The class generally commended.

Six dairy cows, the property of the same owner, prize of £10, to S. Beecroft, Anlaby-road, Hull.

EXTRA STOCK CATTLE.

A first-class medal, to H. Lambert, Wauldby, Brough, for fat roan ox.

A second-class medal, to Lieut.-Col. Towneley, for Diadem.

SHEEP.

JUDGES.—Mr. Chas. Clarke, Whitehouse, Aisthorpe, Lincoln.
Mr. Geo. Leighton, Osgodby, Scarbro'.
Mr. Edward Umbers, Wappenbury, Leamington.

LEICESTER, OR LONG-WOOLLED.

Shearling rams, first prize of £15, to W. Torr.

Second, £5, to J. Borton, Barton House, Malton.

Highly commended.—J. Borton, and Messrs. M. and J. Horsley.

Commended.—J. Simpson.

Rams of any age, first prize of £10, to W. Sanday, Holme Pierrepoint, Nottingham.

Second, £5, to J. Borton.

Highly commended.—J. Borton; T. Beal; Messrs. M. and J. Horsley.

Commended.—T. Pawlett, Beeston; J. Simpson.

Pens of five ewes, first prize of £5, to J. Simpson, Shotforth Park.

Second, £3, to W. Gofton, Pockthorpe.

Highly commended.—J. Holiday, Barmston.

Commended.—J. Holiday; W. Lovel, Nafferton Grange.

Pens of five shearling wethers, first prize of £5, to F. Jordan, Eastburn.

Second, £3, to Mr. W. Lovel.

Pens of five shearling gimmers, first prize of £10, to F. Jordan.

Second, £5, to J. J. Simpson, Pilmoor House, Hunmanby.

Highly commended.—W. Gofton.

Commended.—E. D. Conyers.

Pens of five shearling gimmers, first prize of £10, to T. Marris, The Chase, Ulceby.

Second, £5, to the Hon. A. Duncombe, Kilnwick Percy.

SHORT-WOOLLED, OR CROSS BRED.

Pens of five shearling wethers, prize of £5, to J. Wells, Booth Ferry House, Howden.

Highly commended.—W. Thompson, Hunsley.

EXTRA STOCK.

A first-class medal, to J. Hall, Kiveton Park, Worksop, for an aged ewe.

A second-class medal, to F. Jordan, for a fat ewe.

Highly commended.—J. Borton.

Commended.—J. Fullerton, Thrybergh Park, Rotherham.

PIGS.

JUDGES.—Mr. Chas. Clarke, Whitehouse, Aisthorpe, Lincoln.
Mr. Geo. Leighton, Osgodby, Scarbro'.
Mr. Edward Umbers, Wappenbury, Leamington.

Boars, large breed, first prize of £5, to T. M. Richardson, Hibaldstow, Kirton-in-Lindsey.

Second, £2, to W. B. Wainman, Carhead, Crosshills.

Commended.—J. Youhill.

Sows, large breed, in pig or milk, first prize of £5, to J. Hickman, Hull.

Second, £2, to W. B. Wainman.

Boars, small breed, first prize of £5, to J. Wilkinson, Roundhay.

Second, £2, to T. Pearson, Beeston Hill, Leeds.

The class generally commended.

Sows, small breed, in pig or milk, 20 months old, first prize of £5, to Viscount Galway, Serlby Hall, Bawtry.

Second, £2, to J. Palmer, Thorlby, Skipton.

The class generally highly commended.

Sows, of any breed, in pig or milk, first prize of £5, to M. Walton, Halifax.

Second, £2, to M. Ward, Preston, Hull.

Commended.—W. B. Wainman.

The class generally commended.

Boars, of any breed, first prize of £5, to J. Wilkinson.

Second, £2, to M. Gavins, Woodhouse Carr, Leeds.

Three store pigs, of any breed, and of the same litter, from four to nine months old, first prize of £5, to S. Wiley.

Second, £2, to J. Palmer.

The class generally commended.

EXTRA STOCK.

A first-class medal, to W. S. Owston, The Barff, Brigg, for three boars.

A second-class medal, to Lieut.-Col. Towneley, for a small sow.

Highly commended.—G. Hutchinson, Prospect House, York.

The class generally commended.

HORSES.

JUDGES:—

HUNTERS AND ROADSTERS.

Mr. Thomas Brooks, Croxby, Caistor.
Mr. Slater, North Carlton, Lincoln.
Mr. John West, Melton Ross, Ulceby.

COACHING AND DRAUGHT HORSES.

Mr. Atkinson, Barrowby, Leeds.
Mr. Bowman, Fridaythorpe.
Mr. Gurnell, Appleby, Brigg.

Stallions for hunters, first prize of £20, to J. Batty, Bishop Monkton, Ripon (Elcott, by Venison, dam by Defence, half-bred).

Second, £5, to T. Mansfield, Thirkleby Bridge, Thirsk (Spencer, by Cotherstone, dam by Emilius).

Highly commended.—W. Brigham, Beverley (Wild Hero, half-bred).

Commended.—W. Hudson, Brigham (General Williams).

Stallions for coach horses, first prize of £10, to Mr. W. Burton, Murton (Omer Pacha).

Second, £5, to J. Stockdale, Skern.

Stallions for roadsters, first prize of £10, to L. Hodgson, Highthorne (President, jun.)

Second, £5, to R. B. Ridsdale, Water Gate, Ripley (Young Wildfire).

Highly commended.—W. Burton (Sir Colin).

Commended.—J. and H. Cockshott (Merry Driver).

Stallions for agricultural purposes, first prize of £10, to P. Taylor, Peterboro' (England's Glory.)

Second, £5, to W. Simpkin, jun., Burton Agnes, Bridlington (Champion).

Commended.—R. Askham, Barnhill Hall, Howden (Black Douglas); T. Johnson, Hatfield, Doncaster, (Young John Bull).

Mares and foals for hunting, prize of £5, to C. Harrison, Melton, Brough (Marygold).

Commended.—W. Abraham, Barnetby, Ulceby.

Mares and foals for coaching, prize of £5, to J. Todd, Harland, Cottingham.

Commended.—S. Beecroft, Anlaby Road.

Roadster mares and foals, prize of £5, to F. Jordan.

Commended.—W. Jackson, Garton, Driffield.

Mares and foals for agricultural purposes, prize of £5, to J. Long, Skipwith, Selby.

Three-year-old hunting geldings, prize of £5, to T. Walker, Danes Hill, Thetford (by Young Melbourne).

Highly commended.—R. C. Metcalf, Patrington, Hull.

Commended.—W. Gofton, Pockthorpe.

Three-year-old hunting fillies, prize of £5, to C. Harrison (Florence, by Consultation).

Highly commended.—W. H. Harrison.

Two-year-old coaching geldings, prize of £5, to I. Maw, Howden.

Commended.—J. Stephenson.

Three-year-old hackney geldings or fillies, prize of £5, to W. Johnson.

Highly commended.—Sir C. Constable, Bart., Burton Constable, Hull.

Three-year-old geldings or fillies for agricultural purposes, prize of £5, to W. Gofton.

Commended.—T. Upton, Pallathorpe, Tadcaster; R. Forge, Leven, Beverley.

Two-year-old coaching geldings, prize of £5, to H. Savage, Hessle Grange, Hull.

Commended.—W. Rodmell, Soofham Sutton, Hull.

Two-year-old agricultural geldings or fillies, prize of £5, to T. Upton.

Yearling geldings or fillies for agricultural purposes, prize of £3, to H. Grantham, Scawby, Brigg.

Pairs of horses, of either sex, for agricultural purposes, worked during the season, prize of £5, to W. Angas.

Commended.—T. Acomb; T. Upton.

Hackney geldings or mares, not less than four years old, nor exceeding six, prize of £5, to J. T. Robinson, Leckby, Thirsk.

Highly commended.—W. H. Clark, Howden.

Commended.—G. B. Skelton, Hibalstow, Kirton-in-Lindsay.

Two-year-old coaching fillies, prize of £5, to J. B. Thompson, Anlaby, Hull.

Four-year-old hunter, gelding or mare, prize of £10, to G. Holmes, Beverley (by Young Physician).

Highly commended.—W. Abraham; L. Hodgson.

Commended.—J. B. Barkworth, Cottingham Castle, Hull.

EXTRA STOCK.

A first-class medal, to G. Holmes, for a coaching mare.

A second-class medal, to C. Jordison, Boreas Hill, Hedon, for a coaching mare.

Highly commended.—J. Featherstone, for a brown filly.

SPECIAL PRIZE.

A silver cup, given by Lord Hotham, to Mr. E. R. Harrison, of Cottingham, for President.

Highly commended.—G. Holmes's brown filly.

LONG WOOL.

JUDGE :—Mr. Thomas Clayton, South Stainley, Ripley.

Best five hog fleeces, prize of £5, to Wm. Abraham, Barnetby, Ulceby.

Highly commended.—J. B. Thompson, Anlaby.

FLAX.

Best specimen of green flax, prize of £5, to H. Tennant, Skewkirk, Tockwith.

IMPLEMENTS.

JUDGES.—Mr. W. Barugh, Belford Grange, Driffield.
Mr. John Clarke, Long Sutton, Lincolnshire.
Mr. George Legard, Easthorpe, Malton.
Mr. John C. Morton, Streatheay, Reading.
Mr. Edmund Riley, South Dalton, Beverley.
Mr. John Wheatley, Neswick, Driffield.

Reaping Machines, prize of £20, divided between Burgess and Key, and Cuthbert, of Bedale.

Plough for ploughing six inches deep, prize of £7, to S. Gibson, Barton-on-Humber, for Howard's.

Second, £3, to Busby, Newton-le-Willows, Bedale.

Plough for ploughing nine inches deep, prize of £7, to Busby.

Second, £3, to J. Cooke, Lincoln.

Heavy harrows for three horses, prize of £3, to Gibson, for Howard's.

Light harrows for two horses, prize of £3, to Messrs. Bentall, Maldon.

Drill for turnips and mangold wurtzel on the flat, prize of £5, to Messrs. Coultas and Son, Grantham.

Drill for turnips and mangold wurtzel on the ridge, prize of £5, to Messrs. Reeves and Co., Westbury.

Corn drill, prize of £5, to Messrs. Coultas and Son.

Liquid manure drill, prize of £4, to W. Watkinson, Louth.

Broadcast manure distributor, prize of £5, to Messrs. Reeves, Westbury.

Patent pulverizing plough, prize of £3, to Messrs. Hancock and Gloucester.

Patent machine for blowing and sifting corn, prize of £3, to Kittmer, of Fulstow, Louth.

Cambridge roller and seed drill, prize of £1, to H. Marshall, York.

Metallic horse collar, prize of £2, to C. Lambert, Hull.

Steel-pointed crow-bar plough, prize of £1, to Busby, Bedale.

The silver medal of the society to Isaac Speight, Brigg, for horse-hoe for corn and turnips.

Highly Commended.—Cooke's light land plough; Bentall's heavy three-horse harrows; Busby's general purposes harrows; Clarke's ridge drill; Winder's (Sheffield) rotary pump.

Commended.—Cranston (London) for Wood's reaper; Busby for Northumbrian harrow.

The Council have decided that the next meeting of the Society shall be held at Pontefract. The Earl of Harewood is president of the society for the ensuing year.

THE DINNER

Took place in a marquee near the railway station. Provision had been made for 700 or 800 visitors, but the company present did not exceed 300. The chair was occupied by the president of the society for the past year, Lord Herries.

The PRESIDENT, after the usual loyal toasts, said : The toast which I have now to propose to you is a subject which intimately affects the progress of agriculture. In the show which we have seen to-day, there is so much to be learnt, so much to be seen which is new to many, and so much which concerns the welfare and prosperity of the country. It is now upwards of twenty years since this society was formed, and since then I think great progress has been made. By the exertions of the society, and I hope the stimulant given by it, our time has not been thrown away; but that those who originated the society must be rewarded in the success it has attained. I do not mean to say that this society has been the source of this progress in agriculture which we every day witness, but I do say that it has been a great inducement and stimulant to the progress of it, and also that it had been the means of bringing everything into a focus which can be of instruction and practical benefit to farmers. It has brought a large number of persons together, and enabled friends to meet friends; it has brought skilled labour and the best and most practical farmers together, and it has brought stock and everything else together, so that when we enter the show-yard there is nothing in agriculture which we cannot see in the greatest perfection. If we look back to twenty years ago, there might be stock which exceeded any of the present day, but at the same time I ask you to look round and enquire whether the general stock has not improved. In every part it is perceptible. You no longer see those lean hard-skinned animals, for the butcher and the market, requiring tons of oilcake to feed them, but animals of a better class are brought: we have seen the deficiencies which existed, and have persevered with energy to improve them. If we look at the implements we shall see what has been wrought. Twenty years ago the tile machine was the most attractive part of the implement yard ; while it worked its way, and by cheapening the price of tiles, this machine has been the cause of draining a vast extent of country which would not be drained. Again, the engineer's skill introduced the portable steam engine; what benefit has not that been for the country at large! The machine we have seen in the show-yard which has come rapidly into use—the reaping machine—what advantage will they not be on crops where labourers are difficult to be procured, and where bushels and bushels would have been wasted! The same may be said with respect to all others, but there are too many for me to name. There is everything in these show-yards which would tend to the improvement of agriculture in every way, and the increase of the engineering department of the country. I beg leave to propose "Prosperity to the Yorkshire Agricultural Society."

Mr. H. S. **Thompson** returned thanks for the toast. They had achieved a very great success. The stock shown was numerous and exceedingly good. They had been very well received by all classes in Hull. They had had fine weather and a great attendance; and altogether this had been a very decided success. The only thing, indeed, which the Yorkshire Agricultural Society cannot do is to meet and get up a dinner. (Cheers.) They had always failed at that, and the only explanation he put upon it was that when once the people got into the show-yard they were so much taken up with the beauty there presented, that they could not tear themselves away again. Many like himself had been present at the earlier meetings of the society, and recollected the very wonderful changes that had taken place, and to the best part of them Lord Herries had called their attention. He believed there was much more still to be done than what they had seen done. He believed that they were on the eve of improvements quite equal to those which had taken place since the time when turnips and clovers were introduced, and turned light blow-away lands into the most fertile sort of agricultural lands. He believed that the great clay districts, the great expanse of clay in the midst of which Hull stands, eastward into Holderness, and northward towards York, is about to be improved. The great drawback to the cultivation of clays is the difficulty of growing sufficient food to keep the stock upon it. By finding out the right way of growing mangold wurtzel, they at the same time found out how to grow a large quantity almost unfailingly. He had been trying for some years past this cultivation, and last winter he had got some clay land—a real stiff clay or yellow clay three inches from the surface; and if with three nights' frost—which was all there was last winter—he got a very good crop with only one ploughing, he thought he had a right to show that this is the turning point in his being able to grow mangold wurtzel upon a stiff clay. In ploughing up clay they sometimes met with this difficulty: that it has to be done in a very short time, and upon farms which chiefly consist of clay that cannot be done by the ordinary force of the farms. Then comes to the rescue that great power of steam, and he believed that upon these level tracts they would very shortly see steam brought into regular use in the autumn ploughing of clay.

Mr. **Umbers** said it gave him the greatest possible satisfaction to return thanks both for himself and his brother judges for the kind manner in which they had noticed their endeavours that day. He could only say that if their services had been beneficial to the Yorkshire Agricultural Society in any way, they were fully repaid for any sacrifices they had made in coming there from a long distance to fulfil their duties.

Mr. **Smith**, of Drax Abbey, responded for the successful exhibitors. He found not the least fault with the decision of the judges, and he believed those gentlemen had given their decisions honestly and well. Mr. Thompson alluded to the changes which are constantly taking place in agriculture, and he said that he believes still greater changes and improvements are on the point of taking place. He perfectly agreed with him. He was satisfied that though great improvements have been made, still greater ones are in course or on the point of invention, and which will have a still more beneficial effect on the stiff clay lands of the district. He had unusual opportunities of seeing the different farms in this district, and the manner in which they are worked; and he was of opinion that there was only a small per centage (not more than 30 per cent.) of the stiff lands of this district which are properly drained, and fit to receive the benefit of those inventions which they would soon see.

Mr. G. H. **Heneage** had been very much gratified with the very splendid show of stock in the yard that day, and he thought it had been well said by Mr. Thompson that they were on the eve of great improvements. He was also of opinion that clay lands might be made to pay, and he trusted that before many years had elapsed there would be a very small portion of strong lands in which turnips might not be grown as well as mangold wurtzel. With regard to reaping machines, he considered that Burgess and Key's would suit the large farmers, and that manufactured by Mr. Cuthbert, of Bedale, the small farmers. As to drainage, it had not been sufficiently applied all over the kingdom, but they had ascertained the depth at which land could properly be drained. All, however, could not drain land exactly in the same manner; but in order to do it properly, according to the locality, a farmer must make use of his own eyes and his own experience. With regard to food, he had been told by a practical farmer that cake made of the seeds collected from the cotton plant would fatten stock very nearly as well as oilcake. He hoped that farmers would make the experiment.

Mr. Ald. **Blundell**, as a seed-crusher and manufacturer of oilcake, quite agreed that cotton-seed, when they could get it in a certain state, was very fair food for cattle, but it would be found that one pound of linseed-cake would do far more good than three or four pounds of cotton-seed cake.

Mr. H. S. **Thompson** said that with respect to the cotton-seed, he might state the experience he had had for the last few years with it for feeding purposes. He had used cotton-seed cake and the best linseed-cake in the feeding of from 70 to 80 head of cattle, during the last winter, namely, cows, feeding beasts, and store cattle, and he used a good many tons of the cotton-seed cake during the period he had mentioned, and it had answered the purpose. Those cattle which had been fed with cotton-seed cake, and those which had been kept upon linseed-cake, in equal quantity, were equally good for the butcher. The cake should not be made from the whole cotton-seeds, but from the shelled seeds, because the husk of the cotton-seed was hard and woody, and dangerous to feed cattle upon, many deaths of animals having occurred in consequence of its use.

Mr. J. A. **Sykes** proposed "The labourers." The labourers now-a-days were expected to have some knowledge of the working of agricultural machinery, so that if any wheel or cog, or other little thing got wrong, he might be able to put it right again, without having to wait for his employer, who might be out of the field at the time, or be at market, or at any other place, otherwise the work of the farm might be delayed for hours, until the farmer came home again. He concluded by recommending the establishment of night schools for the education of the agricultural labourers, who might, with proper training and culture, become much more useful in their vocation.

Mr. **Hannam**, in returning thanks for the secretary, said it was a matter of congratulation that this had been so successful a meeting—successful in one point in particular, and that was the trial of implements and reapers.

The company then broke up.

TO MAKE POROUS CHEESE.—A Vermont correspondent of the *N. E. Farmer* gives the following description of the causes of porous, puffy, elastic cheese: "To make porous cheese, in the first place heat the milk very hot, not scald it; then throw in the rennet; be sure to get in enough, and if you want a very porous cheese, put in a great deal too much, so that it will come in a very short time, but don't put in but very little salt (not half enough), and then don't let the curd stand long enough for the whey to drain off, but hurry it into the press as quick as you possibly can; then let it stand in the press until it is pressed enough, or until you can conveniently attend to taking it out—and my word for it, if you don't have a porous cheese to your satisfaction, a slice of which will stretch out by pulling at each end like a piece of india-rubber, as long as your arm, and on letting go of it will contract into its original dimensions. The world was not made in a moment, neither can good cheese be made without time and care."

INDIAN CORN.

If we are lamentably ignorant in this country of many of the food-delicacies prepared so universally on the other side of the Atlantic from Indian corn, judging from the steady import and large annual consumption, there appears to be a growing demand for the corn and meal once so despised in the United Kingdom. If much hominy, samp, succotash, supporne, johnny-cakes, and corn-oysters are unknown here, other preparations of Indian corn are, at least, making their way steadily and progressively. Popped-corn is now met with in our shops. Corn-starch is extensively patronized both as a dietetic article and for the dressing of linen. It makes excellent custards and puddings—is quite as palatable as arrowroot, much cheaper, and as easily prepared.

Maize flour, even of the finest quality, cannot be baked alone into bread. It ferments, like other flour, but the dough falls in the oven, and gives a compact, soap-like loaf, which could not be eaten daily. A certain quantity of some other substance must be mixed with it to make a good bread: a third part of wheat, rye, or potato fecula, is sufficient for this purpose.

The general introduction of Indian corn and meal in the Irish famine year has overcome most of the prejudice formerly entertained here; and the consumption now averages, as the following return shows, about 1,500,000 quarters of the grain, and several thousand hundred-weight of the meal. Two or three million quarters of Indian corn are already shipped annually to different quarters from American ports. And it is calculated that the crop of this grain will reach in a year or two to nine hundred million bushels; while, at no distant period, it may be able to export even this large amount of corn.

The imports of Indian corn into the United Kingdom in the last 14 years have been—

Year.	Quarters.	Year.	Quarters.
1845	55,984	1852	1,479,890
1846	694,184	1853	1,554,434
1847	3,614,637	1854	1,357,375
1848	1,577,023	1855	1,218,276
1849	2,189,164	1856	1,777,813
1850	1,286,263	1857	1,150,783
1851	1,821,573	1858	1,750,825

Some quantity of Indian corn is received from the Danubian provinces.

Of Indian corn meal we have received in the last three years—

Year.	Cwts.
1856	7,880
1857	1,092
1858	4,637

Indian corn is the staple and peculiar food-crop, or bread-stuff, of the United States; although wheat is now largely competing with it there. Whenever Europe is short of food America stands ready to supply the deficiency with the excess of her corn crop, the superabundance of which she is obliged at present to fatten swine and live stock on, or to convert into whisky. It is *the* plant of the country; and the olive branch might with propriety be taken from the claw of their national eagle and the Indian corn plant substituted in its place. With three staples so universally in demand as Indian corn, cotton, and tobacco, the United States will always have marketable commodities at command for extensive shipment.

The importance and value of Indian corn in tropical and semi-tropical countries are too well known to need illustration. On every part of the globe where the hand of civilization has broken the turf this beautiful grain receives a large share of attention. In the western continent it is raised from Canada to Patagonia and the islands of the South Seas, through almost every variety of climate and people, and over an extent, from north to south, of more than 7,000 miles. It was introduced into Africa by the Portuguese in the sixteenth century, and is cultivated more or less from the Mediterranean Sea and the Libyan Desert to the Cape of Good Hope. In Java and the Asiatic isles it forms an important product. In Central Asia it is known and valued, as well as in Australia and the islands of the Indian ocean. In Europe it is extensively produced; in Hungary, in Lombardy, in France, and in Spain, and, we might almost say, from the Ural chain to the Atlantic. No grain could secure such favours from all parts of the world except from its intrinsic value. No other cereal, in fact, except rice, is so extensively cultivated.

Its flexibility of organization makes it very easy of adaptation to climate and soil. Though it prefers moist and rich soils, with strong heats, there are varieties of it which can be raised in tropical climates, at a height of more than 9,000 feet above the level of the sea. The warmest regions of the torrid zone produce maize in abundance, where three crops can be taken in a season; while the short summers of Canada have a variety adapted to them. This cannot be said of rice, which requires great heat, and cannot endure a climate of high latitude.

Indian corn ripens at a time when most other grains have been harvested; it therefore furnishes employment when there would naturally be but little else to do. But what gives to Indian corn its great importance is the actual amount of nutritive matter which it contains. It is said to be third in this respect, wheat and rice containing a somewhat greater amount; though many place maize second only to wheat.

There is hardly any grain which yields so much for the support of animal life. As a fattener for swine and poultry, we may say that Indian corn is unrivalled in utility. As a food for man it is extensively used, though by some thought to be too stimulating.

Notwithstanding Cobbett's mania in favour of the extended growth of Indian corn in England, its culture has made little progress in our uncertain climate; and we depend rather upon importation than cultivation. However much it may be raised in small patches for local consumption in other countries, it is in the United States alone that it enters largely and systematically into cultivation. In 1840 the quantity raised in the States was estimated at about 377,352,000 bushels. But so widely has settlement and agricultural progress since extended—so easy is this grain of culture, and so profitable is the return from it, that the crop now raised in the United States is stated to be double that amount. There is no species of cerealia which manifests itself under such various form, size, colour, and chemical ingredients as Indian corn. Varieties are met with exhibiting every grade, size, colour, and conformation between the shrubby reed that grows on the shores of Lake Superior to the gigantic stalk of the Ohio valley; the tiny ears, with flat, clear, clinging grains of Canada, the brilliant rounded little pearl, or the bright-red grains and white cob of the eight-rowed hematite, to the swelling ears of the big white-and-yellow round seed of the Southern States. Wherever seen, maize is an object of admiration; and its lofty stem, broad leaves, silken tassel, and tall waving flower justly entitle it to be considered the most beautiful—as it is the most bountiful—of all the cereal grasses.

During the revolutionary war in America molasses was frequently made from the stalks of Indian corn; and while it could be kept from fermentation it was highly prized, but soon became tart, an evil, doubtless, easily corrected by lime, as is now practised in all sugar manufactories. It has been ascertained that a bushel of Indian corn worked in a distillery gives over a pint of oil. It is easily purified, and burns with a clear, bright flame. At a whisky distillery near Ontario oil is extracted at the rate of 16 gallons per 100 bushels of corn, leaving the remaining portion of the corn more valuable, and in better condition for distillation than before the oil is extracted.

Cobbett not only wrote about Indian corn, planted Indian corn, ate Indian corn, raised Indian corn, and made paper of Indian corn husks, but printed a book on the Indian-corn paper. And in this he certainly took much pains to collect all the details respecting the culture, produce, and domestic uses of the grain. Had he lived to the present day, he would have been, at least, gratified to find Indian corn and its products coming into very general use and favourable estimation in the United Kingdom. In the process of kiln-drying, to preserve maize for transport, it is subjected to a degree of heat not greater than 212 degs. Fahr.; sufficiently long to destroy its germinating power, but not long enough to parch or crisp it, so as to impair its substance or nutritious properties. Kiln-drying, however, impairs the flavour of corn of all kinds. Before thrashing it is necessary to husk the corn, which is simply stripping off the fine sheathing that surrounds the ear. To effect this, "husking bees," or friendly meetings of neighbours and friends, are often called in the backwoods, which, after the business is done, end in a pleasant dance and supper. The stripped husks are occasionally used for filling mattresses; door-mats are also made with them. The cobs are even turned to some use; a farina has been prepared from them in Austria; they supply the place of corks for bottles, and have been ground-up and boiled for cattle-food, and they are used as a fuel for smoke-drying bacon.

THE CHILI PINE* AS A FRUIT TREE.

It is the nature of some plants, such as the cereals, to be remunerative to the planter the same year in which they are planted; whilst others, such as the oak and the American aloe, are so notoriously slow in their movements as to require little less than a century to come to maturity. Nevertheless, millions of oak trees are planted annually; and wise men look upon wooded estates as a princely inheritance for their children, and the American aloe *(Agave americana)*, notwithstanding the legend of its flowering only once in a hundred years, is still a great favourite in every garden. Hoarding rich sap in its gouty and prickly leaves for thirty years or more, all at once it rushes into bloom with a majestic flower-stem eighteen or twenty feet high, making honourable amends for former delays, and appearing quite a lily among thorns.

The Araucaria, like the oak, has heavy duties to perform, and will not hurry into the fruit-bearing state until, like the aloe, it has elaborated through its evergreen and leathery leaves (which, by-the-bye, are at work day and night, summer and winter) something handsome in the way of a conical-shaped tree one hundred and fifty feet high and prodigiously heavy, for even in its infant state every twig is thickened like a truncheon.

From such a plant as this, then, great things might be expected; and we find that on the slopes of the Andes, where the tree is indigenous, it yields cones from six to nine inches in diameter, and in such profusion that the fruit of one tree will maintain a large family for a whole year, the seeds being as large as almonds and nearly as nutritious.

Its hardihood and its ornamental character are points already established; for it is to be seen in small numbers in every garden of any note, and if its habits had been as precocious as those of ordinary fruit trees, we should no doubt have seen it planted more abundantly; nevertheless the facts are the same, and the day assuredly will come when this gigantic tree will attain its adult character, and produce seeds in such numbers as to become a granary for the owners. Planters ought therefore to avail themselves of the earliest opportunity to get a few planted in good situations, and this leads me to remark that the Araucaria is not the plant for dry ground, neither is it calculated for swamps, as indeed few of the coniferæ are. Evergreen in character, it must be supplied with liquid food for its leaves all the year round, and that from deep rich soil where frost cannot penetrate. A hill-side therefore will eventually be found the best adapted to the growth of this tree since its supply of moisture, in the form of vapour for its leaves and water for its roots, will there be continuous as its demand must be.

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* Araucaria imbricata.

Perfectly at home with any amount of rain, its stem is actually roofed by nature with leaves over-lapping each other like tiles to drip downward, quite contrary to the way in which leaves are usually inserted, evidently showing the style of climate it has been prepared by nature to inhabit.

As to its cost, that great hindrance to the introduction of all good things, it is quoted in the nursery catalogues, "well-established in pots in ornamental style for immediate planting, from 2s. 6d. upwards;" and I may as well state, that an acre of ground will not contain more than four full-grown Araucarias. There is an avenue of Araucaria imbricata planted with great care in Lady Rolle's magnificent park at Bicton, near Exmouth.

Half-a-century has added considerably to our experience in the management of this tree, and has marvellously reduced its cost; for if I have been rightly informed, Mr. Cunningham paid fabulous prices to the late Mr. Lee, of the Hammersmith Nurseries, London, for plants with only the seed leaves on, and tidy-sized plants were worth ten guineas; and, as the matter stands now, they are cheap at that, since it will be from these first-got specimens that the true character of the tree will be seen.

A forest of these trees a few square miles in extent, such as we see of pines, would be something so truly grand that we can hardly think it possible to be realized. The high importance and real beauty of a grove of trees, such as the Araucaria, is not a matter of caprice, neither is it to be looked upon as the mere fancy of a lover of trees, but a fact unalterably settled in the councils of the Creator; hence we find it recorded in holy writ, "Hurt not the earth nor the TREES;" and, when we consider all the points of excellence in the Chili pine, we shall not fail to see that it is entitled to the highest consideration among trees as something truly great and good; and if any argument were necessary to induce landed proprietors to plant, they might be told that he who plants even one ornamental tree may look proudly to it as to a living and beautiful monument that may for ages be admired. Highly honoured indeed must the memory of that man be whose trees shall be counted so highly of, that it would seem from the passage quoted as if God himself paused before He would give his angels the final order to destroy: "Hurt not the trees."

ALEX. FORSYTH.

13, *Islington-square, Salford, Manchester.*

INTRODUCTION OF ENGLISH BIRDS AND GAME INTO AUSTRALIA.

Of all the people of the world there is not a more migratory one than the Anglo-Saxon; and yet after all there are none who so ardently cling to their native country—who so long to revisit its island shores when opportunity offers, even after long years of absence, and who delight to surround themselves with everything that can awaken olden recollections and early habits. This passion becomes a mania in which the Englishman indulges at the cost of any bodily fatigue or extravagant outlay. He will keep up Christmas festivities in remembrance of olden times, although his festive holiday at the Antipodes comes round at the wrong season, with none of the Christmas associations. He will shoot or race, or hunt, or play cricket, under a tropical sun at the expense of health and comfort, because it reminds him of home. Whatever, indeed, comes from his native land, or serves to bring back the remembrance of "old friends at home", is appreciated far beyond anything more easily attainable, and is sought for and secured with an eagerness and avidity only understood and appreciated by those who have been long settled in a far distant land. The inimitable Sam Slick has graphically and truthfully described the colonists' dependence on and love for England and everything of English origin:

"When he went to school, his hat, his coat, his shirt, his trousers, and his shoes—all came from England; his satchel was made in Manchester, and his slate was from the English slate-quarries; his book and paper, his lead-pencil, his ruler and copybook, were all sent from England. The moment he began to use a horse, his saddle and bridle, spurs, crupper, girths, whip, halter, reins, bits, currycomb, brush, and iron shoes, were all made for him in England. If he enjoyed the sports of the field, his gun, his flask, his shot-bag. powder and shot, and percussion-caps were English, If he went fishing, his rod and line, the sinker, the floats, and even the flies were English, although there were flies in the colony big enough and strong enough to bite through a boot, and the borders of the lakes were covered with wood that would supply the whole world with fishing-rods. If he built a vessel, not a single thing in it belonged to the country where it was built; the rigging, the iron, the copper, the ropes, the chains, the rudder, the compass, and all the fittings were English. If he built a house, which he did very early, for he was a very amorous young gentleman, and frequently caught his bird before he had got a cage, then the trees were cut with an English axe, sawn with an English saw, planed with an English plane; the boards were nailed with English nails and by an English hammer, and the windows were of English glass, puttied with English putty. Then the carpet, knives, forks, plates, were English, and so were the decanters—for he would drink something besides cold water. He thought, too, it was something touching that the colonist still said he was going "home" when he came on a visit to England; and though it might be thought that the man he had been supposing, having brought nothing into the world, took nothing out with him, yet he was put in an English coffin lined with English flannel, covered with English cloth, screwed down with English screws and an English screw-driver, and his name was on an English coffin-plate. The priest, in an English gown, read the service over him out of an English book, and the earth was shovelled over him with English shovels. From the cradle to the grave the colonist was dependent on England."

But this is a pardonable failing, and one in which we can all sympathize; and, even when carried to excess, it has its practical and beneficial bearing.

There is a confident reliance on the character and quality of everything of English make and of English origin; and although, in many instances, this trustful confidence is too often betrayed by the sharp dealing of unprincipled merchants and manufacturers, the opinion cannot be rooted out, and continues to manifest itself, alike in the breast of old colonists and new settlers. English-bred horses, cattle, and sheep; English agricultural implements and seeds; English literature, all find a preferential interest in the distant dependencies of the British Empire.

There are many familiar flowers too, which seen in a distant land, like the Elcaya of the East and others, spoken of by Moore, are sources of most delightful recollections. The author of "Walks through many Lands," wandering light-hearted in a foreign country, describes himself as having been suddenly arrested in his course by the scent of well-known flowers wafted across his path, which so vividly recalled the remembrance of home as to affect him very deeply. Bishop Heber too, was surprised and affected on finding an English daisy in India.

So true it is that—

> There is an innate feeling clings
> Around our human clay;
> A fondness for familiar things,
> That will not pass away.

Long may this bond of associative ideas between Great Britain and her colonies be maintained!

Distant as the Australian colonies are, there are none more thoroughly English in their habits, or more devotedly attached to the various sports and pastimes of the Old Country, which are promoted with a vigour not exceeded at home. The turf is patronized in almost every district and settlement of Australia, Tasmania, and New Zealand. Aquatic pursuits are carried on with considerable energy, cricket has become a colonial institution, while public incidents are celebrated as they are in England by most hospitable festivities. But the colonists are drawing around them all the associations possible that can remind them of the island which they have quitted. Amongst other matters to which they are now turning special attention is the introduction of British game and singing birds, which may become, prospectively, of general benefit to the colonies. The facilities for the undertaking are great, and persevering attention, care, and judgment the principal requirements. From their geographical position and climate the southern colonies appear peculiarly adapted for the naturalization of the game and singing birds of Britain, and it is a matter of surprise that the colonial squirearchy, the possessors of large estates, have not, ere this, used some energetic means for their domiciliation.

We draw prominent attention to this subject now, because we perceive it is under discussion in the colonial legislatures and journals; and some few private efforts are making in the matter, which only require imitation to lead to very beneficial and pleasurable results. With respect to singing birds, attempts have been made by a few amateurs, which in several instances have proved successful; but there is much room for enlargement and improvement.

We see no reason," observes a Tasmanian journal, "whatever, why the blackbird and thrush should not enliven our woods with their tuneful notes, and recall many a happy scene and happy hour of by-gone times at home, nor why the thrilling melody of the skylark 'at Heaven's gate singing' should not be heard around our farmhouses and homesteads in every direction throughout the land. Several of these joyous songsters have been imported, and have done remarkably well in confinement, *à priori*, therefore, we may reasonably assume that, with care and attention in their distribution and location they would thrive and multiply in their natural liberty. Much, however, would depend on the manner in which the birds were treated and taken care of on the voyage, and this care would not be materially augmented by the number of the little passengers. The success of their importation may be inferred from what has been so well done by Captains Harmsworth and Coppin, who have brought several interesting, if not valuable additions to our native ornithology, and, especially, as regards some choice specimens of improved breeds of poultry. There is nothing to prevent this practice from being carried out to such an extent as to introduce into the colony the different varieties of British game, the climate, soil, and general face of the country being well adapted to their support and habits."

Several small importations of deer, fowl, pheasants, partridges and singing birds, in good condition, have been made to Victoria and Tasmania lately. The deer introduced have done well, proving, beyond a doubt, that their naturalization could be effected without difficulty, and that, in time, herds might be established in the park-like lands that adjoin the country-seats of many of the affluent settlers. As the wild, indigenous game of the country—kangaroos, emus, &c.—are becoming scarce, they may advantageously be replaced with the more domesticated species of Europe, which gladden an Englishman's eye. The introduction of pheasants is stated to be a decided success in Tasmania and other quarters, and they have bred when domesticated. There can be no doubt, therefore, as to the possibility of successfully conveying these varieties to the antipodes, for, with ordinary care on ship-board they will reach their destination but little the worse for the voyage, and that little easily repaired. If then the pheasant is so hardy a bird and readily inured to a change of residence, what is there to prevent its extensive domiciliation with the partridge in the Australian settlements? Quails are already native. There are no vermin there to interfere with the game, for the native dog and cat are not met with in the settled districts. The only enemy to be feared is the hawk, not a very bold bird, and avoiding close contiguity to the habitations of man, so that any great danger on this account need not be apprehended. The hare has not, we believe, yet found its way to the Australian colonies; but it might be introduced, with some care and comparatively little trouble. There are already rabbits in the colonies, both tame and wild, in numbers; and why not hares? True, the hare is naturally a wild and timid animal, fond of solitude and afraid of every creature larger than itself; it affects secluded coverts and coppices, is retiring and solitary in its habits, and, as a general rule, shuns the vicinity and companionship of man. But for all this the shy and timid creature may be tamed, and even domesticated in the way that all wild animals ought to be subdued, by considerate kindness. Who has not read with delight the poet Cowper's description of his three pets, the hares which are now identified with his revered name and amiable virtues? We have known other instances in England where this timid creature has been rendered perfectly docile, so that this quality in the animal would obviate many of the disadvantages incident to the voyage, and it is highly probable that if any number were turned out into a preserve they would soon become familiarised to the change of habitation, regain their natural habits, and with ordinary care and circumspection thrive well and successfully. Some hares sent out in a vessel called the "Norfolk" all died. Half-a-dozen hares were shipped not many months ago by a Mr. James Austin, in a vessel called the "Pioneer," with a lot of partridges, pheasants, blackbirds, and thrushes, linnets, goldfinches, larks, &c., for his estate at Barwan Park, near Geelong, and an experienced gamekeeper was sent out in charge of them. Several other private shipments have also been made, and the Parliament of Victoria has voted a sum in aid of the efforts making by Mr. Edwd. Wilson and other colonists, now in England, to introduce game, singing birds, fish, &c.

Among the fowls recently introduced are Spanish, Poland, Dorking, and game, from highly-prized strains of blood, some of which will no doubt figure at future Australian poultry shows. Too little attention has hitherto been paid to domestic poultry in Australia, and yet these are always an important accessory in colonies, whether for farm or town use. As a result of these frequent importations, the colonists will, eventually, have many of the English game and singing birds naturalized among them. With the successful introduction of deer, hares, partridges, pheasants, salmon and trout, the Australian colonist may not only resort to the rod and gun for pleasurable sport, but may indulge in old esteemed dainties for the table.

"SILK AND SCARLET;" BY THE DRUID.

Rogerson, Tuxford, and Co., 246, Strand, London.

That many a stout warrior lived and fought before Agamemnon, we scarcely require the melodious assurance of Horace to inform us; nor are we inclined to depart from his reflection that these gallant souls have passed away unnoticed, because the penman was wanting to rescue the spearman from oblivion.

In this respect, however, modern notabilities have doubtless an advantage over the heroes of antiquity: this is the age of memoirs, recollections, biographies, autobiographies, diaries, &c.; and no man in these days need fear that his good and evil deeds, his talents, whims, weaknesses, or vagaries, shall be lost to posterity, for lack of a recorder. Neither can the keen-eyed goddess of the chase, nor her blind sister, who from the top of her revolving wheel presides over the turf, complain that literature has done injustice to the votaries of fox-hunting and horse-racing: on the contrary, the books that have been written on these favourite subjects would form no meagre library; and a casual reader would, perhaps, be surprised to find what an amount of erudition, research, and elegance adorns their pages, as though the sportsman should support his stables on Corinthian pillars, and deck his dog-kennels with cornices and mouldings of gold.

Thomson has not scorned to tell us, in sonorous verse, of "Feats Thessalian centaurs never knew;" and one of the best epics of its kind, that was ever written, under the title of the "Billesdon Coplow Poem," describes such a gallop over Leicestershire as makes the blood tingle in despite of oneself.

Who has not sympathized with the daring energy of Assheton Smith's *début?*

"The H. H. who in Leicestershire never had been,
And, of course, such a tickler could rarely have seen;"

and appreciated the *pluck* that did him such yeoman's service, when—

"With dashing and scrambling, and *one rattling fall,*
He saw all the fun up to Stretton's white hall"?

Who has not fancied himself alongside of the flying quartette, who "made such sharp play," that—

"Had you judged of these four by the trim of their pace,
At Bibury you'd thought they were riding a race"?

or experienced a fellow-feeling with the dashing rider, who rued the natural consequence of his velocity, when—

"Villiers esteemed it a serious bore
That no longer could Shuttlecock fly as before."

But enough of Parson Louth's graphic poem; we must go on to humble prose, not always less forcible and suggestive.

So early as the time of Charles I., that princely cavalier the Duke of Newcastle wrote an elaborate folio volume on horsemanship: but as his instructions are chiefly directed to the finished arts of the *manége*, he may, perhaps, scarcely come within the catagory of sporting writers. A century later, in the pages of a quaint work, called the "Sportsman's Dictionary," we find sundry articles devoted to the training and conditioning of hunters. The worthy author's system is, however, somewhat out of vogue in the present time, and his different recipes for the stable are already exploded. We do not now think it beneficial to "comfort the stomach" of a hunter with toast and ale, whatever advantage may be derived from such condiments by his rider; and if we were about to prepare our horse for a match, chase, or plate, to use his own expression, we should be more inclined to adopt the system at present practised at Newmarket, where the ale is altogether discarded, both for man and beast. But the "Sportsman's Dictionary" was doubtless an authority in its day. Cook and Beckford had not then written; and, indeed, the *cacoëthes scribendi* required at least another century ere it could rage rampant through the length and breadth of the land. Perhaps, of all others, the well-known "Nimrod" was the most successful in bringing this style of authorship into repute.

Colonel Cook tells, with laudable accuracy, the exact expenditure entailed by a pack of fox hounds, omitting none of the trifling items most projectors are prone to overlook; but keeping us, it appears, somewhat short of hounds. Fifty couple for four days a week, we would submit, with all due deference to the Colonel, is hardly enough. Beckford, again, goes deep into the science of the thing, restraining much that is poetical and enthusiastic in his nature, and never losing sight of the great practical object of a good sportsman, viz., to kill his fox fairly above ground. He tells us how to choose our hounds, and breed our hounds; how to put them into covert, and cast them at a check; in short, how to handle them in every dilemma in which a pack can be placed. He is great on the habits of the fox, and we suspect, like all men of keen observing powers, was something of a naturalist; but he gives us very little of what we may term the *romance* of the chace. To him hunting is an all-important subject, to be discussed like ethics, strategy, or state-craft, in a temperate and business-like manner.

It was reserved for Nimrod to do for field sports what Sir Walter did for history. For all his lion-heart and stalwart form, the first Richard has been the better known to posterity since the publication of "Ivanhoe." And in the same manner, a certain article, penned many years ago by Nimrod for the "Quarterly," has signalized a group of heroes in scarlet, who but for those records had crossed the Styx, as well as the Whissendine, unknown, unhonoured, and unsung." What an article it is! What a February morning! What a field, and what a run! We have always been so sorry for that good little bay horse when he declined at the gate, and a "customer" on his second horse jumped it close to the post, to be followed by another "customer," also on a remount. We regret, we always *shall* regret that "snob" had not two horses out, to enable him to go on in that first flight with which he held his own so well. And we approve of his discretion as well as his humanity, in not pressing the game little animal when it was beat. Though many have been written since, it is far and away the best description of a run in print, and Alken has not failed to catch its dash, and stamp it on those spirited plates of his for ever. Encouraged by the success of this brilliant sketch, Nimrod became the most voluminous as well as the most popular of sporting authors. For a good many years he contributed largely to this magazine, and amongst many other works, brought out one which he entitled "Hunting Reminiscences," but which people generally called somewhat invidiously, "The Hard Riders of England." It was, as its proper appellation denoted, a series of short accounts of different individuals celebrated for their prowess in the hunting field, and was written in the easy pleasant style, with its wealth of anecdote, which distinguishes its author's earlier productions. Its frontispiece, in which the late Lord Kintore may be seen flying a compound fence, with a drop into a lane, a certain fall, and under which is printed his lordship's provident exclamation to a countryman, "Hie, you sir! catch my horse!" gives an idea of the contents of the work; but although it is an amusing and well-written production, its interest has now passed away with most of those whose deeds it was written to record.

The ncame a whole constellation of sporting writers. Mr. Delmé Radcliffe gave us his experiences and opinions; Mr. Smith his diary and vocabulary; Mr. Grantley Berkeley his own sporting careeer—*sporting* in the truest sense of the word, as used by the lover of nature, and poetry, and beauty, whether of the woods and wilds, or the changing skies, or the sagacious animals that he made the partners of his amusements.

Nor were the realms of fiction left without their scarlet-coated and top-booted heroes. The inimitable Jorrocks filled four good-sized volumes with his vagaries, ere he retired from Sugars and the Surrey, to turn country gentleman at Hillingdon Hall. Soapy Sponge had the best of it on the queerest of horses, in the "shires" and the "provinces" alike, through several hundred pages, till that indomitable heart succumbed to the fascinations of Lucy Glitters; and Featherbedfordshire, wherever that county may lie, can scarcely yet have forgotten the vapid good-looking youth, who alternated his failures in the field with his successes in the drawing-room, seldom staying long enough in any one place, at Lord Ladythorne's or elsewhere, to be compelled to "ask mamma." Sporting novels, indeed, are rather on the increase—more's the pity, think we; for the subject is worn nearly threadbare. And there is also a goodly collection of graver works on the same favourite topics. Amongst all the writers of the present day, whose names are familiar to the public, none are perhaps more popular than the gentleman who has for some time contributed to this magazine, under the *soubriquet* of "The Druid," and whose latest and most elaborate work, entitled "Silk and Scarlet," we have just perused, to use a trite expression, with much pleasure and profit. Some short time since, the same author published a little boook called "The Post and Paddock," on the merits of which it is needless to enlarge, inasmuch as its rapid sale will sufficiently bear witness to its qualities. The present volume, he tells us in his preface, was intended as a companion work; but he has, in a happy spirit of improvement on many like efforts, devoted no small portion of his labours to the noble animal without whose sagacity and efficiency our favourite pursuit would be a blank. He has told us of celebrated hounds as well as hunters; of feats performed by Challenger and Melody, as well as leaps taken by Bayard and Buck-jumper: he has written a book, in short, which is interesting to the field in general, but which warms the very cockles of the huntsman's heart.

This is an *ad captandum* age. The outside and the appearance go far to bias our judgment upon most matters. "Silk and Scarlet" is a beautifully got-up little volume, containing portraits of Dick Christian, the noted rough-rider; of Robinson, the jockey; of

Dick Stockdale; of Tom Rance; of Tom Sebright: and of the late lamented Will Goodall, who died so prematurely last spring, regretted deeply and sincerely by all who knew him, *nulli flebilior* than by his afflicted master, the present Duke of Rutland. Also adorned with a capital sketch from the speaking pencil of a Northamptonshire gentleman, in which Sir Charles Knightley and Mr. Osbaldeston are hit off to the life. We can ourselves vouch for the excellence of most of the above likenesses; and the short and pithy accounts that stand opposite each depicted worthy are no less faithful portraitures than the engravings themselves.

True to its title, this elaborate little work contains a voluminous account of the most celebrated jockeys, and the most remarkable trials of well-known trainers and vigilant touts, of the foreign market for our thorough bred stock, of the Godolphin and Darley Arabians, the Byerly Turk, and other stud-book notabilities, under the appropriate head of "Silk;" whilst in the "Scarlet" department, we have biographies of the most noted huntsmen, many pithy anecdotes connected with the chase, pedigrees and performances of famous hounds—a subject that has been too much neglected in all parallel undertakings; and neither last nor least, but first and formost, a series of sporting lectures, and observations, by no less practical an authority than old Dick Christian, the famous rough rider. This venerable Chiron, who for more than half-a-century taught all the young horses, and most of the young riders, within twenty miles of Melton's well-known town, must tell his own story in his own graphic language. His training, like that of most successful men in all lines of life, seems to have been of the roughest.

> "I began hunting," says he, "when I was eight years of age, and I've never missed a season since. I rode second horse for Sir Gilbert. Mr. George Watson, he once said to him, '*You'll kill that boy riding day after day without stirrups.*' Bless you, I could turn a summersault in those days when I felt the horse going. I throwed myself clean over his head, and always ketched on my legs. No end of gentlemen saw it." And, indeed, his education, as a boy, seems to have been much of the same kind as that which he himself favoured a later master's son, called "Little Matty"—the "*spem gregis,*" indeed, of Mat Milton, the horsedealer. "Poor little Matty!" says Christian, "he used to cry sadly. Old Matty would make him follow me. I well-nigh drowned him two or three times. My reg'lar orders were to '*go and ketch 'em,*' and the little chap was never to leave me. Mat always said that he would lick him if he stopped, but he never did that I heard of. At those very owdacious places, poor little fellow! he used to holler out, '*Where are you?*' He could'nt spy me for them bulfinches; he didn't know if I wur up or down. We never turned the horses' heads, but went bang at them. Lucky if we only got three falls a day. He was so light, he used to bound up again like a ball. Captain White and Mr. Maxse, they did so enjoy seeing us at it. When they got to one of them reg'lar stitchers, they used to say, '*Here's Dick and Matty coming, they'll have it!*' When I see them I says, 'Matty, here's a rum 'un on afore us; take fast hold of his head, and don't fear nothing.' I always put him on those I knew to be perfect. Sir James Musgrave used to back us against the fences. Once I sees them coming on the road to meet us; I thought there was something up, and there it was, a great big stile and steps, with a deep ditch. I hears Sir James say to Mr. Maxse, '*I'll bet you twenty guineas he comes over it:*' and my word, we won it for him."

Pretty severe training this for a young one, and only to be paralleled by that of the infant Viking, who was "rocked in a buckler and fed from a blade." But it is not only of his own "hair-breadth 'scapes" and adventures that he loves to talk; he has store of anecdote concerning his friends of the same nature, and he tells them with a certain grim humour that reminds us of an old *moustache of the Vieille Garde*. Here is a description of an amiable animal that might have made a match for Cruiser before he was Rare-fied.

> "Will Head had a chesnut they called Wroxton, and rode him eight seasons. I never see such queer fore-legs; good 'un to go, for all that, but bad at a brook; a savage beggar, never leave you if he could get at you. Once Will gets took up into an oak tree at Sheep-heads in Charnwood Forest. He hung there, and this Wroxton walks right from below him, and stops to look; there Will hung, but the horse never offered to touch him. Will thought he'd have eat him that round, but he was as sensible as a Christian, *would'nt take no wrong advantage!*"

With two of Christian's maxims we would in all humility wish to record our entire concurrence. In the first he expresses a very slight opinion of the use of spurs, arguing from his own large experience that the manner in which we take hold of a horse explains to him all we require him to do, and that the less he is flurried by punishment the better; and in the second, he gives the preference to blood. "Thorough-bred horses," says he, "make the best hunters. I never heard of a great thing yet, but it was done by a thorough-bred horse."

The number of thorough-bred hunters is doubtless increasing every day; and yet even now, with the superior pace of hounds, and the system of forward riding, which has of late become so general, it is strange that the full-blooded animal should still be the exception rather than the rule in every stud that goes up to Tattersall's. In all particulars and at all points he seems to us the most desirable animal. If we want to flourish away to the front at starting, is he not the fastest? If we would come out at the finish, is he not the most lasting? At large fences he shows coolness and activity, at small ones patience and docility; while if we belong to that rational class who enjoy a quiet chat in a sheltered ride, and a steady trot or a moderate canter along the turnpike road, and the best-established lines of hand-gates rather than a whirl of tumultuous excitement with a cropper at its conclusion, he is a quieter and far less insubordinate "mount" than his baser-born stable companion. Yes, the longer we live the more we are convinced that "*pure claret*" and *thorough-bred horses* are essential to the modern fox-hunter. A bottle of port and a Cleveland Bay will stop in three fields!

But we must not linger over our *beau ideal* of what a hunter ought to be, but rather trace back the noble animal to his earlier, and many will say his more legitimate profession of the turf. Three months must elapse before we can don the "Scarlet" again: in the mean time "Silk" is "your only wear;" and the "Druid" very properly places that article and its concomitants immediately after Dick Christian's Lectures, and true to his recollections of celebrated huntsmen and anecdotes of famous hounds, "the Nestors of a sporting generation"—*noblesse oblige*, and the race-horse takes that precedence to which his birth entitles him. The opening chapter commences very appropriately with a poetical heading, in which *he* is not forgotten to whom racing men are so much indebted, and who scorned not to wear upon sweepstakes and handicaps the talents that made him afterwards one of the first statesmen of his day—

> "No more shall he at Doncaster
> Each foal and yearling pat,
> Or ride up Goodwood's leafy slopes,
> To the trial-ground with Nat."

But whilst England has a race-course Lord George Bentinck will not be forgotten. The "Druid" then goes on to describe the glories of Knavesmire, some seventy years ago, and enumerates a host of names famous on that turf which has now closed over them for ever—the Prince of Wales, Peregrine Wentworth, Lenny Jewison, Cade in the "all white," Hutchinson, Sir Charles Turner, Bolton, Queensberry, Rockingham, Bedford, Grosvenor, Abingdon, Barrymore, and a thousand others, who were giants in their day, and whose race is now run for ever. His description reminds us of a picture by Stubbs, and takes us back at once to the days of knee-breeches, jewelled snuff-boxes, powdered heads, heavy bets, and heavy evenings, in which bumper-toasts were not suffered to pass unpledged: an era when our aristocracy had superinduced on their own native energy some of the vices, but more of the polish and refinement of the *old* French school; a different type, indeed, from the *brusque*, closely shaved *gaillard* of modern France. As a specimen of what the reviewers are pleased to term "word-painting," in that conventional slang with which they furnish opinions ready-made for ready money, take the following:

> "A View of Noblemen's and Gentlemen's Trains of Running Horses, with the Grooms and Horses in their Full Liveries," was the popular print of 1790. The Warren Hill is the scene of the afternoon's revel. Quiet little Newmarket just peeps forth in the hollow, in the centre of that restless panorama; and in the far distance the Ely Minster turrets cut the cloudless sky, and struggle manfully for pre-eminence with Highflyer Hall. In the fore-ground is the Prince, by the grace of the artist a somewhat slim-looking buck, in a sort of Don Cæsar de Bazan beaver, standing up in his phaeton with four greys, and booking a bet with the shrivelled Duke of Orleans on horseback at his side. His brother "York" has alighted, and is gaily pointing out to a lady a long-sheeted string, which are, West Australian fashion, cutting down the Warren Hill like a scythe, in the direction of King Charles' Cupola chair. On the extreme left, the Countess of Barrymore, in the costume of
>
> "Those tea-cup days of hoop and hood,
> And when the patch was worn,"
>
> sits in the phaeton by the side of her eccentric liege lord (who was so soon to fall lifeless in her arms as his hand held the reins), and listens to the animated periods of Charles James Fox, as he exults in the coming laurels of his Seagull and his Put. John Duke of Bedford is also amid the throng; and so are Haggeston, George Hanger, Wyndham, Captain Grosvenor, and Bullock. That ancient oddity, Colonel Thornton, though not much of a racing man, has wandered off here as well, and Falconer's Hall—where his seventy hooded hawks were kept to complete the devastation among the Yorkshire Wold game, which his three 150-guinea guns, "Death," "Destruction," and "Fate," were unable to accomplish—is forgotten for the nonce in the prospect of the forthcoming Grosvenor Stakes."

Opposite the likeness of Dick Christian, stands that of Jem Robinson, the jockey; and the Biography of the latter, from his stable-boy days—when he would promise another lad half his plum-pudding on Sunday to rack up his horse, that he might absent himself and see Frank Buckle ride, to his triumph with Dictator, and the same Frank on Merlin, and his victories on Lamplighter and Margrave—is told with the spirit and condensation which are so appropriate to all such narratives. Sam Chifney, George Edwards, the two Sam Days, Charles Marlow, Conolly, Pavis; veteran Tommy Lye; Bill Scott, of "strenuous speech" and energetic finish; Marson, Butler, and a host of other heroes of the weighing stand, find a place in the "Druid's" memory; and a powerful appeal in favour of their class concludes his elaborate list of the jockeys of England.

A word on behalf of that hard-working profession. When we consider the severity of training they undergo, the risks they run—for it is, after all, no such simple matter to get up at short notice on some of our thoroughbreds, and, despite of queer tempers and game legs, ride them honestly home—the competition with which they have to strive in a country where every stable-boy, like the French soldier who carries a marshal's *baton* in his knapsack, hopes in his day to ride a Derby winner; above all, the temptations to which they are subjected, it is to us matter of pride as well of surprise that their probity should so seldom be corrupted. As a body, they are certainly above suspicion, and we must take leave on one point to differ with our authority. We believe there is nearly as much riding talent in this present year of '59 as ever was in England; and we do *not* subscribe, however well it may be worded, to the spirit of the following lament:

> "When we mark the rare phalanx who went to scale for the Oaks of '44, and think that of those alone Sam Chifney, Robinson, John Day, jun., Chapple, Sam Darling, Frank Butler, and Job Marson will ride no more, we may well, in these latter days, when jockeys are so rife, and yet horsemen so rare, full often wish for them back."

Amongst the noted stallions of this and former eras, Cruiser is not forgotten. Like Nero, his vices have made him famous; although unlike the imperial tiger, he has been brought by certain trans-Atlantic "fixins" to see the error of his ways. It seems strange—though, perhaps, on reflection, our wonder may disappear—that the highest-bred horses should thus show the extremes of good and evil disposition; but Cruiser is by no means a solitary sample of ferocity in these illustrious sires. Ardrossan, in his match with Abjer, tried to tear Robinson, who was riding the latter, out of the saddle; and Merlin, who became Lord Foley's property at two years old, in exchange for two thousand guineas, killed a man in his box, and was found two hours afterwards kneeling on his victim, and literally wallowing in his blood.

We have already trespassed largely on the space allotted to a notice, even of such a work as the present. We cannot, however, bid its author farewell, without thanking him for a considerable store of information as regards hounds, which he must have collected with indefatigable perseverance and research. In speaking of a new arrival in the field, the late lamented Sir Richard Sutton[*] used to say good humouredly "Is he a *houndsman* too, or only a *horseman?*" and no master of hounds in England better appreciated the distinction. We must do the Druid the justice to dub him a *houndsman* at once. He is evidently not one of those gentlemen who are quite satisfied to gallop and jump, without any definite object save that of giving a hunter a certain *quantum* of work; but loves to see a fox fairly found, fairly burst, fairly hunted, fairly chased, and lastly, fairly run into by a level, well-ordered, well-looking pack of hounds. He has gone deep into the subject of blood, which, much as it may tell in men, horses, sheep, pigs, and cattle, is in no animal of such vital importance as in the hound. Not the inimitable Mr. Puffington in "Soapy Sponge" has a "warmer side to the Beaufort Justice;" and the number of names and pedigrees which he has introduced under the head of "Scarlet" argue such an intimacy with his subject as nothing but a labour of love can produce. Each stallion-hound of notoriety has his appropriate notice, and although Juvenal tells us that in horseflesh—

> "Venale pecus Corithæ, posteritas et
> Hirpini, si rara jugo Victoria sedit,"

in the kennel we may pretty safely pin our faith to the old maxims, that "like begets like," and "what is bred in the bone will come out in the flesh." The often-agitated question, as to the respective merits of dog-and-bitch-packs, of big and little hounds, is too like the fable of the knights who fought about the gold and silver shield, to admit of a definite settlement. For our own part, with all due deference to the great authorities who have decided otherwise, we hold to the dogs for hunting and killing *foxes*, the bitches for racing and killing *horses;* and the size of our hounds, we opine, should depend much upon the nature of our country. Like horses, however, they should look less than they really are, even on the flags, until you put them between your knees. In the field the fastest of us have all seen them look small enough at the end of five-and-forty *golden* minutes over grass!

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[*] Another of that popular baronet's apposite remarks is so suggestive that we cannot forbear quoting it. On spying a bit of scarlet in the distance, a friend inquired if it was one of the field, or only an old woman in her marketing cloak. "It's a red coat, doubtless," quoth Sir Richard, "but it does not follow there's a man in it!"

Portraits of Tom Rance, Tom Sebright, and poor Will Goodall, deck the latter half of the volume. The two former are men well stricken in years, but still vigorous, and in the lusty health of manhood. The youngest of the three has been taken first, and in his prime; no more to see mellow autumn tinging the woods of princely Belvoir with its glowing hues; no more to cheer the deep-toned old favourite through the echoing glade, and mark the hopeful progeny emulating the mettle and sagacity of his sire; no more to return the cordial greeting of assembled sportsmen, and show them the shortest way to his cherished hounds over the vale: keen, wary, dashing, and sagacious, patient on occasion, quick as lightning on necessity, the very type of all a huntsman should be in the field, an honest worthy man in the station Providence had appointed him to fill.

No more—no more! When the wished-for season comes again, there will be a blank at the woodland side, a wistful expectant look on the old hounds' faces; for the soft November wind will stir the waving grass over Will Goodall's grave. *Requiescat in pace.* Men do not sleep for ever. G. W. M.

DURHAM COUNTY AGRICULTURAL SOCIETY.

The eighteenth annual meeting was held at West Hartlepool, and, in some respects it may be characterised as one of the most successful the Society has ever held. The weather was magnificent, and, in a pecuniary point of view, the show was quite successful. The following is the award of prizes:

THE CHALLENGE CUP, VALUE 100 GUINEAS,
Mr. Richard Booth, with "Queen Mab."

JUDGES.—Mr. Unthank, Netherscales; Mr. J. Outhwaite, Bainesse, Catterick; Mr. Wilson, Brawith, Thirsk; and Mr. Newby.

Best Bull of any age.

First prize of 20 sovs. to Messrs. Stephenson and Coulson, Fourstones, Hexham (Ivanhoe).

Second of 5 sovs. to W. Tod, Elphinstone Tower, Tranent.

Best Bull, under Two Years old.

First prize of 15 sovs. to Colonel Towneley, Towneley, near Burnley, Lancashire (Royal Butterfly).

Second of 5 sovs. to W. Tod, Elphinstone Tower, Tranent.

Best Cow in Calf or Milk, having had a Calf within the last Twelve Months.

First prize of 10 sovs. to Richard Booth (Queen Mab).

Second of 5 sovs. to Colonel Towneley (Emma).

Best Two-year-old Heifer in Calf.

First prize of 6 sovs. to Capt. Gunter, the Grange, Wetherby, (Moss Rose).

Second of 3 sovs. to the Hon. Lady Pigot, Chippenham Park, Cambridgeshire (Duchess of Gloucester the 2nd).

Best One-year-old Heifer.

First prize of 5 sovs. to The Hon. Lady Pigot (Stanley Rose).

Second of 2 sovs. to Capt. Gunter (Duchess 77th).

Bull Calf under Twelve Months old.

First prize of 3 sovs. to Joseph Wilson, Woodham, Morpeth (Duke of Tyne).

Second of 1 sov. to David Neasham, Haughton-le-Skerne (Sir Duke).

Best Heifer Calf under Twelve Months old.

The Prize of 3 sovs. to David Neasham (Priscilla).

EXTRA STOCK.

Cow in Milk.

Highly commended.—Richard Booth (Nectarine Blossom).

LOCAL PRIZES.

Best Bull of any Age.

The Prize of 10 sovs. to Robert Proctor, Throston Grange (General Havelock).

Best Cow of any age.

First prize of 4 sovs. and second of 2 sovs. to George Trotter, Tunstall.

Best Two-year-old Heifer.

The prize of 4 sovs. to Wm. Smith, Brierton (Miss Nightingale).

Best Yearling Heifer.

The prize of 2 sovs. to Robert Procter (Lilian).

Best Bull Calf under Six Months old.

The prize of 2 sovs. to Robert Procter (West Hartlepool).

Best Heifer Calf under Six Months old.

The prize of 1 sov. to Henry Stephenson, Throston.

LEICESTER, OR LONG-WOOLLED SHEEP.

Best Ram of any age.

The prize of 5 sovs. to Joseph Simpson, Spofforth Park, Wetherby.

Best Shearling Ram.

The prize of 5 sovs. to Joseph Simpson.

Best pen of Five Ewes, having reared Lambs this year, Joseph Simpson.

Best pen of Five Shearling Gimmers.

The prize of 3 sovs. to Joseph Simpson.

PIGS.

Best Boar, Large Breed.

The prize of 3 sovs. to Robert Wild, Bishop Auckland.

Best Boar, Small Breed.

The prize of 3 sovs. to George Mangles, Givendale, Ripon, Yorkshire.

Best Sow, Large Breed.

The prize of 2 sovs. to H. J. Marshall, Sands House, Durham.

Best Sow, Small Breed.

The prize of 2 sovs. to George Mangles.

Best Pig, the property of a Cottager.

First prize of 1 sov. to John Bradley, Newburn-street, West Hartlepool.

Second of 10s. to George Thornton.

Third of 5s. to George Cawle, South Road, Durham.

HORSES—BROOD MARES.

JUDGES.—Mr. George Menzie, Quarrington; Mr. Atkinson, Roseden, Alnwick; and Mr. Hawdon, Walkerfield, Barnard Castle.

Best Saddle Mare.

The prize of 5 sovs. to Stephen Kirby, Thirsk.

Best Harness Mare,

The prize of 5 sovs. to Henry Newby, Pittington Hallgarth.

Best Cart Mare.

The prize of 5 sovs. to R. C. Coulson, Burnigill, Durham.

FOALS.

Sweepstakes of 5s. each, with £2 added by the Society, for the best Foal for the Saddle, to Robt. J. Mewburn.

Sweepstakes of 5s. each, with £2 added by the Society, for the best Cart Foal, to R. C. Coulson, Burnigill, Durham.

THREE YEARS OLD.

Best Three Years Old Colt or Filly for the Field.

The prize of 5 sovs. to J. T. Robinson, Leckby Palace, Thirsk.

Best Three Years old Colt or Filly for Harness.

The prize of 5 sovs. to John Ellison, Gore Hall.

Best Four Years old Cart Colt or Filly.

The prize of 5 sovs. to John Nellist, East Thickley, Shildon.

TWO YEARS OLD.

Best Two Years old Colt or Filly for the Field.

The prize of 4 sovs. to Mathew Brunton, How Hills, Aycliffe.

Best Two Years old Cart Colt or Filly.

The prize of 4 sovs. to Henry Stephenson, Throston.

YEARLINGS.

Best One Year old Colt or Filly for the Field.

The prize of 3 sovs. to Smart Atkinson, Low Beaumont Hill.

Best One Year old Colt or Filly for Harness.

The prize of 3 sovs. to John Humble, East Hartburn.

Best One Year old Cart Colt or Filly.

The prize of 3 sovs. to William Dickman.

HUNTERS.

Best Hunter, Mare, or Gelding, under 8 years of age, qualified to carry 12 stones with Hounds, and warranted sound at the time of entry. The horses must be ridden and take three leaps, within 300 yards in the presence of the judges.

The prize of 10 sovs. to William Proud, Bishop Middleham.

Mr. JACKSON'S PREMIUM.

Best Mare or Gelding from 4 to 6 years old, suitable for Cavalry, Artillery, or Hunting purposes.

Prize of 25 sovs. to J. T. Robinson, Leckby Palace, Thirsk.

IMPLEMENTS.

JUDGES.—Mr. J. Parrington, Brancepeth; and Mr. Crawford, Lumley Park.

A prize of 5s. was awarded to W. Lax, Crossgate, Durham, for a Winnowing machine; a prize of 10s. to J. Waton, South Stockton, for Thorley's Cattle Food, &c.; 5s. to R. Paxton, Pity Me, for chain harrows, horse hay rake, &c.; 10s. to John Gregory, Westoe, South Shields, for ploughs, harrows, &c., and 10s. for an improved horse rake, with side lever springs; 5s. to Robert Young, Stanton, for harrows, grubbers, wheel and swing ploughs; £2 to the North of England Implement Company, for Samuelson's patent Britannia Reaping Machine, and £3 for their general collection of implements; £1 to F. Dixon, millwright, Norton, for a two-horse power improved thrashing machine; 10s. to John Arrowsmith, Wolviston, for implements for grubbing and skimmering combined, invented and made by exhibitor; £1 to Mr. Stephenson, Stockton, for wire-work.

THE MOUNTAIN SHEEP OF SWITZERLAND.

[TRANSLATED FROM THE GERMAN OF FR. VON TSCHUDI.]

Sheep are not very extensively reared in this mountainous country; wherever there is, however, a chance of success, the industrious inhabitants never fail to grow what wool they can, and the canton of Buenden alone has some sixty or seventy thousand sheep, amongst which those of Garpan and Seewis produce a fine quality of wool, whilst the rest is more esteemed for the meat, giving only about three pounds of coarse wool as a yearly average. All the sheep found in Switzerland belong to one of the following varieties:—

1. The common Suabian sheep; middle-sized, usually white-fleeced. Very poor wool.

2. The Fleming, or Dutch sheep, has a long and fine wool.

3. The Bergamasco sheep; a singular, high-legged animal, bigger than the others. The head is held erect, the nose very arched, the long ears pendant, and they have a piece of loose skin hanging down from the chin to the fore legs. They are driven annually from the valleys of Brescia and the plains of South Tessin, to the Engadin Alps, where they pass the summer. Their voice is of a deep bass, and their whole nature appears to be tinged with melancholy, as even the lambs are never seen to join the frolics of their kindred.

4. The Spanish, or Merino sheep, which stand the alpine climate unexpectedly well. Herds of them are met with occasionally all over the country, but more numerously in the French cantons.

Those parts of the higher Alps which are not accessible to cattle—elevated meadows, sometimes nine thousand feet and more above the level of the sea, often surrounded by miles of rocky ruins and glaciers—serve as summer pasture for sheep. A shepherd's boy has the care of them. He must avoid driving them directly over snow fields, as they are very easily attacked with snow blindness; and he has also to look out for snow storms; if overtaken by them the whole flock will lay down on the ground and rather die from cold or hunger than move on. Every evening a little salt is strewn over the ground, and eagerly licked up by the sheep during night. Sometimes, in very remote parts of the Alps, small flocks are met wild, that have escaped in some way from the custody of man; they fall an easy prey to the eagle and golden vulture. In Appenzell, sheep are the usual addition to a herd of cows. The wool and the meat only are used in the German and French parts of Switzerland, the milk never.

The higher the pasture and the drier the summer, the more the sheep will prosper. Summering costs about half a Swiss gilder per head. The weekly wages of the shepherd's boy is a half to one gilder and victuals. Summering, however, often proves a troublesome and losing business: should the bell-wether choose to jump down a precipice,' of course the whole flock goes the same way and is lost; sometimes a strange dog drives the flock to such a desperate leap. A hail-storm is always dangerous, and there are instances on record that two hundred head were killed in one storm; a thunderbolt striking the densely packed flock, also seldom fails to do great damage.

Swiss sheep-rearing in general is still open to improvement, and might easily be made a better paying and more useful business. The dung is an excellent manure, peculiarly adaptable to the many meagre meadows, and alpine pasturage undoubtedly promotes the health of animals in a considerable degree.

As soon as the highest pastures in the Alps commence to develop their vegetation, all the roads of Southern Tessin are thronged with the wandering caravans on their way to the higher regions. The extensive flocks pass by slowly, feeding all along on the small patches of grass lining the road. Large, lean, long-haired dogs maintain a wonderful order. The whole procession is opened and closed by a shepherd. These are inhabitants of the barren grounds in the valleys Val Seriana and Brembana, a few families, all near relations to each other, are the proprietors of all the wandering flocks. Their nomade-life is regulated by one of their number, who is appointed chief, or "pastore." Early in the spring he goes to the Alps of Buenden to inspect and rent the meadows he intends to use as pastures, and to prepare everything for the arrival of the flocks. A well-packed ass always follows these, bearing some wearing apparel and whatever else is indispensable for so long a journey. The shepherds themselves officiate alternately—while some of them are travelling with the flocks, the others stay at home to take care of the families, and perform what little work in the field is required. The "pastore" alone is exempted from these duties. He has to look after all the general business; the sale of sheep, wool, cheese, &c., belongs to his department; but he is often found to share in the more vulgar duties of his brethren. During the warmer season, they travel in the night; but when returning home in the fall, the day-time is usually preferred. Careful as the shepherds are, they nevertheless entrust watching the flocks, for the most part, to their excellently trained dogs, one of which superintends a large number of the woolly tribe. The roads taken are almost traditionally the same, and they have put up at the same places ever since they began. Every township demands a more or less considerable sum for the passage of the flocks, amounting in some to quite a burdensome tax.

Arrived on the Alps, all the sheep are separated into four flocks—first the ewes with the suckling lambs; then the wethers and all saleable stock; thirdly, the rams and larger lambs; lastly, all the milking ewes with a few rams. To each of these flocks a separate district is assigned, and a shepherd with a boy appointed over it. When the district happens to be at a considerable distance, a hut is also put up for the shepherd; those that are near enough live at the chief's hut, which has three rooms, a kitchen, a bed-room, and a store-room. With the completion of this building, the working season on the alp is fairly inaugurated.

The dogs never leave the flock, incessantly keeping the most careful watch. An approaching stranger is discovered at a great distance, and taciturnly accompanied until he is past the flock; the moment, however, he turns towards one of the sheep he is seized and held until the shepherd is on the spot. The shepherds themselves, although in good circumstances at home, live very scantily on the mountains. They take only breakfast and supper, and both these meals consist of a water-polenta, made from maize (Indian corn) or hirse, with the addition of a little cheese. Water and whey is their only beverage. Of course a man cannot be joyful with such food, and these shepherds are indeed suspicious-looking, word-sparing, cunning fellows, of a rather wild character. They never sing or play the flute like other shepherds; but they are scrupulously attentive to their flock, easily contented, and hardened against everything. Their bed is an arm-full of old hay, spread over a wooden couch, their woolly cloak serving as a pillow or cover. Old men, covered with the snow of eighty winters, are not at all rare amongst these sturdy fellows.

The sheep follow the shepherd with the utmost obedience. They are always pastured according to a previously designed arrangement; each flock remains in the district assigned to it and proceeds in regular order, always densely crowded. A short, sharp whistle, is the signal to start; a modulation of the same, or a deep, bleating sound encourages the moving crowd, which marches quietly over rocks and glaciers. Are they to stop, the leader stands still for a moment, and then goes around the whole flock, calling the tardy ones with short sounds. Thereupon the whole mass remains quietly on the spot until aroused again by another whistle. Even the smallest spot covered with grass is reached in this way without any trouble. It is not a very seldom occurrence in the mountains of Engadin, that a wolf, bear, or lynx, makes its appearance; in such a case, other flocks invariably run away in the greatest confusion; the Bergamasco sheep remain quiet, except crowding a little nearer to each other; the watchful dog soon faces the enemy and calls, barking, his master. Fed on middlings, water and whey, the poor animal is not only always in a miserable condition, but also lacks the power he might otherwise have to show battle against any one of the larger beasts of prey; several of these dogs combined attack, however, fiercely the strongest wolf.

The apparently despondent mood of the mountain sheep is attributed to the hardships they are constantly exposed to. They often have to remain in a snow storm for several days without any food; keeping as close as possible to each other under the shelter of a rock, the distress they suffer is manifested only by a deep, melancholy bleat.

The Bergamasco shepherds, who are commonly called Tessini, from their passing the winter near the Tessino, derive the following benefits from their herds:—During all the summer season they sell the fattened wethers; the butchers of Glarus and Zurich are constantly buying up these "fat ware," and pay for a couple, three years old, and weighing, in the average, eighty or ninety pounds a head, from forty to forty-six Milan livres. Then there is the increase in lambs. The wool crop is always considerable; it is taken twice a year. Three or four pounds is the average of a sheep each time. This wool is coarse, but is manufactured into cloth for the Austrian army, as well as into blankets. The mutton is very hard and insipid, though fat. A singular use of it is made—when a sheep happens to die on the mountain, the bones are broken, the whole animal stretched out between sticks, dried in the air, and sold to the poor in Italy.

We must dwell a little longer on the milk of these sheep, although the shepherds themselves think the process of milking them rather troublesome. To perform it, the sheep are driven through an enclosure, at the outlet of which two shepherds are stationed, taking hold of every ewe that attempts to pass out, and milking her with two fingers. The milk is afterwards strained through linen. The average produce of each animal amounts scarcely to five tablespoonsful, and it requires the milk of three hundred for a "gepse," that is, the fourth part of the quantity necessary for cheese making. The other three parts are supplied by cows' or goats' milk, and ewes contribute, consequently, by far the smallest part of the ingredients in those celebrated small cheeses. Perhaps it is just the mixture that renders these so delicate. Next after the cheese, the "puina," or sweet whey, is obtained; strained through linen and consolidated, it is highly esteemed, but commences soon to ferment; the good taste of it is also destroyed by pickling. What is now left of the milk forms the whey the shepherds and their dogs live on. Four "gepses" of milk produce six or eight cheese-cakes, weighing about two pounds each, and some twelve or sixteen pounds of sweet whey. This is a very singular branch of industry indeed.

As soon as September comes, the "pastore" pays the pasture rent, and issues his orders for the return home. The big asses are packed again, and on a given day all the flocks meet in the village of Gurgofesio, where they are shorn. Each sheep is marked on the ear, but those of each flock all alike—this prevents mistakes. In the lower parts of Piedmont, near Bresica, Crema, and the lower Tessino, extensive plains are rented by shepherds, who separate their flock in the same manner as before on the Alps, and keep them at night in penfolds. The government, and other proprietors of large estates, permit the keeping of the flocks on their grounds, selling the remaining manure afterwards for the production of saltpetre.

The Bergamasco sheep, thus accustomed to all kinds of hardships, suffer very little from disease. An affection, not very unusual amongst them, is called "rogna;" it seems to be an eruption of the skin, and is successfully treated with tobacco juice, the Tessini being, with very few exceptions, indefatigable chewers of that weed. A flesh wound, or a broken leg, is a matter of little importance with them, at least as far as the sheep is concerned; the animal licks the injured part for a while, and its hardy nature does the rest of the cure in a remarkably short time.

Between thirty and fifty thousand of these sheep summer every year in the mountains of Buenden, and for the privilege of pasturing them there an annual rent of sixteen or seventeen thousand gilders is paid. The Spluegen furnishes pasture for perhaps a thousand more, in addition to which, a hundred or more horses are annually kept there by the shepherds, for others, these latter paying almost the whole rent on that mountain, say, perhaps, a hundred gilders. Now the inhabitants of Buenden might render their alps still more profitable by using them themselves; but then they would have to adopt also the honesty and frugality of their tenants, which seems to be altogether too difficult a task for them. The native shepherds in these mountains are never found without mutton, and their employers complain, with good reason, of the unusually large number of sheep that are yearly said to have died accidentally.

CORN FOUND WITH MUMMIES.—It is a well-known fact that corn is often found in the outer cases, or, in fact, coffins of mummies, and it has also been stated that such corn, on being sown, has yielded a crop, notwithstanding its immense antiquity. In a late number of the *Journal Pratique d'Agriculture* M. de Vilmorin casts a doubt on the genuineness of these crops from seed upwards of 3,000 years old. There can be no doubt, he contends, that the corn of our time loses its power of vegetation after a lapse of 10 or 12 years at the utmost, even in the case of Spanish or Moorish grain, which preserves its vitality longest. Now, why should the Egyptian corn reaped 30 centuries ago be otherwise constituted in this respect? M. de Vilmorin admits that it has had the advantage of a constant temperature during the whole period of its stay in the catacombs, but this is not sufficient, he remarks, to produce such astonishing longevity. If the vessel in which it was contained was hermetically closed, there must still have been air enough inside to produce a certain degree of decomposition, and render the grain rancid; if the vessel was open, the bituminous effluvia of the mummy could not fail to exercise their well-known destructive influence on the seed. Still, many highly respectable persons have affirmed that they have obtained crops from the corn of mummies. M. de Vilmorin, without doubting their veracity, thinks they were mistaken; they did get crops, but not from the corn they had sown. Were they quite sure, he asks, that the mould in which they sowed, or the manure they used, did not contain some grains of corn ready to vegetate under favourable circumstances? Suppose a man to sow some Egyptian corn on a particular spot of his garden, if after a while nothing springs up he forgets the circumstance, finding the failure perfectly natural. If, on the contrary, a few stalks sprout up, he is overjoyed, cultivates them with extraordinary care, and obtains some excellent grains of corn, perhaps of an extraordinary size too; and this he reaps, and gives some to his friends as the genuine produce of mummy corn. It is thus, according to M. de Vilmorin, the delusion has spread and been generally adopted.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A CATALOGUE OF THE IMPLEMENTS EXHIBITED AT THE WARWICK MEETING.

(Concluded from page 165.)

The St. PANCRAS IRON WORKS COMPANY, Old St. Pancras Road, London.

A full-sized model of a loose-box, fitted up to show the patent pivot manger, price about £30; and (new implement), a patent pivot manger rack and water-trough, in separate parts, expressly for loose-boxes, price £4, invented by Professor Varnell, of the Royal Veterinary College, and manufactured by the exhibiters; (new implement), a loose-box door, fitted with iron ventilating grating, invented and manufactured by the exhibiters, price of ironwork with fastenings, hinges, and hangings £1 12s. 6d.; a loose-box post, fitted with necessary hangings for door, manufactured by the exhibiters, price £2 5s.; a loose-box division, invented and manufactured by the exhibiters. price £4 4s.; a patent swing-manger and rack (enamelled), invented by Professor Varnell, of the Royal Veterinary College, and manufactured by the exhibitors, received the commendation of the Royal Agricultural Society of England, at Salisbury, 1857, and the silver medal of the Royal Agricultural Society of Ireland, at Waterford, 1857, price £3 10s.; a set of white vitrified tiles, price 2s. per square foot; (new implement) a patent wrought-iron stall-division, consisting of iron post, ramp and sill, and boarding; invented and manufactured by the exhibiters, prices, wrought post 25s. 6d., wrought sill 7s. 6d., wrought ramp 45s., boarding 63s., if plain ramp 12s.; a set of tinted enamelled iron plates, manufactured by the exhibiters, price 2s. 6d. per foot superficial; (new implement) a patent enamelled top-plate manger rank, and water-trough, with noiseless halter guide, price £4 10s.; a patent manger and square rack with roller, price £2 18s., invented and manufactured by the exhibiters; a set of buff vitrified tiles (diamond pattern), price 2s. 3d. per foot superficial; (new implement) a stall-division for cart-horses, price, extra strong stall-post 30s., extra strong ramp 12s., wrought-iron bottom sill to receive boarding 7s. 6d., boarding 58s.; (new implement) an improved cart-horse manger and rack, price £2 17s. 6d.; and (new implement) a specimen of patent wrought-iron stable-gutter, price 2s. 6d. per foot run, invented and manufactured by the exhibiters: a specimen of patent moveable cover-gutter, price 2s. 6d. per foot; an angle-piece for gutter, price 3s. 6d.; and a tee or connecting piece for gutter, price 3s. 6d., manufactured by the exhibiters; (new implement), an improved iron sanitary horse-pot (trapped), invented and manufactured by the exhibiters, price 12s.; a sanitary horse-pot (trapped), price 7s.; a corner manger, price 9s. 6d; a wrought-iron corner hay-rack, price 9s., manufactured by the exhibiters; a loose-box division, invented and manufactured by the exhibiters, price, wrought-iron ventilating division (per foot run) 7s. 6d., bottom sill to receive boarding (per foot run) 1s. 3d., 1¾in. boarding, grooved, beaded, and iron-tonged 63s.; loose-box post, fitted with necessary hangings for door, manufactured by the exhibiters, price £2 5s. and £1 15s.; a patent corner manger and rack, invented and manufactured by the exhibiters, price £2 5s. 6d; a patent galvanized manger and rack, manufactured by the exhibiters, price £3; a patent enamelled manger rack and water trough, invented and manufactured by the exhibiters, price with brass halter eyelets £3 12s. 6d.; (new implement) a patent noiseless halter guide, price 10s. 6d.; a patent enamelled straight manger, manufactured by the exhibiters, price £1 10s.; a patent enamelled manger and rack, price £3; a wrought-iron straight hay-rack, price £1 1s.; a patent manger-rack and water-trough, price £2 7s. 6d; a patent corner manger (enamelled), price £1 12s.; a wrought-iron circular hay-rack (capped), price 14s.; a patent enamelled double-corner manger, price £3 7s. 6d, invented and manufactured by the exhibiters; a wrought-iron corn bin, manufactured by the exhibiters, price £1 10s. to £3; a wrought-iron corn bin, manufactured by the exhibiters, with two divisions for oats and beans, price £2 5s.; a set of town-made corn measures, price, half-quartern 2s. 3d. and upwards.; a strong sack truck, manufactured by the exhibiters, price 14s. and 18s.; a corn sieve, price 3s. 6d.; a chaff sieve, price 5s.; an improved carriage setter, invented and manufactured by the exhibiters, price 14s.; an iron carriage setter, price £1 1s.; a stable lantern, price 2s. 6d. and 4s. 3d., manufactured by the exhibiters; a patent stable lantern, price 15s.; a strong oak stable bucket, price 5s., others less; an improved stable skip, price 5s. 8d., manufactured by the exhibiters; a specimen of paviors, laid in cement, price £4 per thousand; a specimen of clinkers, laid in cement, price £2 2s. per thousand; a specimen of grooved paviors, price £5 per thousand; a model of stalls and boxes, designed and manufactured by the exhibiters; a set of patent harness brackets, invented and manufactured by the exhibiters, price 8s. 8d.; a set of patent brackets, covered with gutta percha, price £1 5s. 6d.; a set of patent brackets for double harness, price 17s. 4d.; a set of brackets for gentlemen's riding harness, price 12s. 3d.; a set for ladies' riding harness, price 15s. 3d.; a board of harness room fittings, head plates and bolts, price 4s. 6d.; an improved pipe pillar rein, price 6s.; a pair of best town-made bright steel pillar chains, price 10s.; an improved pipe halter rein, price 7s. 6d.; a star plate and ring, price 4s.; a collection of ornamental name plates, price 2s. 6d. to 6s. each; a variety of ventilators, price, 12 inches 5s. 6d., 15 inches 9s., 13 inches oblong 5s.; (new implement) a pair of improved coach-house door hinges, price £1 6s., manufactured by the exhibiters; a portable enamelled wash-stand and top, price £1 1s.; a harness room stove and boiler, price £2; (new implement) an improved saddle airer, price 9s. 6d., manufactured by the exhibiters; (new implement) an improved harness horse, price £1 12s.; a patent collar-bar hurdle for sheep, deer, or cattle, price 4s. 2d. and upwards, invented and manufactured by the exhibiters, received the silver medal of the Royal Agricultural Society of England, at Salisbury, 1857, and the high commendation of the Royal Agricultural Society of Ireland, at Waterford, 1857; a wrought-iron rational or foot gate, price 16s.; a wrought-iron flat-bar continuous fence, price 1s. 11d. per foot run; wrought-iron round-bar continuous fence, price 1s. 2d. per foot run; a wrought-iron tree guard, price £1 5s.; (new article) a wrought-iron tree guard of improved design, price 18s.; a wrought-iron flat-barred field gate, £1 8s. and upwards; a pair of wrought-iron field gates, price £2 10s.; a pair of cast-iron posts for field gate, price £1 8s., all manufactured by the exhibiters; galvanized wire netting, price 1½d. per lineal yard and upwards; (new article) a wrought-iron standard for fixing wire netting, price 4d., invented and manufactured by the exhibiters; a cow stall, price 30s.; a trough for cattle, price £2 10s; a specimen of gutter for cattle stalls, price 5s. per foot run.; a pair of ornamental cast-iron park gates, with wrought-iron frames, price £94 10s.; a pair of ornamental cast-iron gates, price £80; and a pair of ornamental cast-iron pilasters, price £55, designed and manufactured by the exhibiters; and an improved rational or foot gate, price £1 1s., invented and manufactured by the exhibiters.

James Smyth and Son, Peasenhall, Suffolk, and Witham, Essex.

(New implement) a machine for protecting the turnip and other crops from the ravages of the fly, invented by William Frederick Padwick, Esq., of Hayling Island, Hampshire, and improved and manufactured by the exhibiters, price £29; a patent three rowed turnip, mangold wurzel, seed, and manure drill, price £16; a five rowed ditto, price £25 10s.; a patent broadcast manure distributor, price £16 10s.; a patent general purpose drill, gained a prize of £10 at the Society's Meeting at Liverpool in 1841, price £41; a patent six rowed turnip and mangold wurzel seed drill, price £12; a patent twenty four coulter seed drill, price £26 10s.; a patent seven coulter small occupation lever corn drill, received the Society's prize of £5 at Gloucester in 1853, also their prize of £5 at Lincoln in 1854, price £16 17s. 6d.; a patent nine coulter lever corn drill, price £22; an improved fore carriage steerage, price £4 10s.; a patent ten coulter lever corn drill, price £23; a seven row horse-hoe, price £6 6s.; a patent eleven coulter lever corn drill, price £25 10s.; a patent twelve coulter ditto, price £26; a patent thirteen coulter ditto, price £27 10s.; an improved fore carriage steerage, price £4 10s.; a patent fourteen-coulter lever corn drill, price £29, seed sowing apparatus extra £5 19s.; a patent fifteen coulter ditto, price £30; a patent thirteen and two coulter corn drill, price £32; and an improved seven row horse hoe, price £12 16s.; all invented, improved, and manufactured by the exhibiters.

Edward R. and Frederick Turner, of St. Peter's Iron Works, Ipswich, Suffolk.

A crushing or bruising mill for oats, linseed, barley, malt, &c., invented, improved, and manufactured by the exhibiters, was awarded the prize at the Royal Agricultural Society's Meeting at Norwich in 1849, Gloucester in 1853, Lincoln in 1854, Carlisle in 1855, price 12*l.*, pulley for power 12s. extra, small size less; an oat bruising, linseed crushing, and bean splitting mill, price 5*l.* 15s. 6d.; an oat bruising and linseed crushing mill, price 4*l.* 15s.; a malt mill, price 5*l.* 10s.; a crushing or bruising mill for oats, barley, linseed, malt, &c., price 18*l.* 18s.; a combined mill for crushing or bruising oats, linseed, malt, barley, &c., and splitting beans, &c., price 24*l.*; a patent combined mill for crushing or bruising oats, linseed, barley, &c., splitting beans, and for grinding beans, peas, barley, wheat, &c., to fine meal, price £31; a corn grinding mill, price 56*l.*; a bean splitting mill, price 4*l.* 10s.; a mill for grinding Indian corn, beans, barley, &c., to meal, price 4*l.* 10s.; a 2-horse power portable steam engine, price 90*l.*; a 3-horse power ditto, price, mounted on iron wheels, 118*l.*; a portable thrashing, shaking, riddling, winnowing and barley avelling machine, price 45*l.*; a chaff cutter, price 11*l.* 11s.; a chaff cutter, for hand or power, price 7*l.*; oilcake breaker,s price 1*l.* 15s. to 3*l.* 10s.; a gear work for one or two horses, price 9*l.*; and an intermediate motion for horse gear, price 3*l.* 10s.; all invented, improved, and manufactured by the exhibiters; (new implement) a Smith and Taylor's patent cultivator, scarifier, or drag harrow and pulverizer combined, invented and manufactured by the Thomas Smith, of Bredfield, Suffolk, price, with nine drag teeth, 12*l.* 12s.; A. T. Smith's patent self-acting counterbalance lever horse-rake, invented, improved, and manufactured by Thomas Smith, of Bredfield, Suffolk, price, with 34-inch iron wheels and shifting counterbalance weights, £8 8s.

John Tye, of Lincoln.

A portable or travelling corn grinding mill, highly commended at Chester in 1858, price 65*l.*; portable or fixed corn-grinding mills, price £38 and £44; and a corn mill, price 145*l.*; all invented, improved, and manufactured by the exhibiter.

Williamson Brothers, of Canal Iron Works, Kendal, Westmoriand.

A 3-horse power portable steam engine, price £120; a 3-horse power portable steam engine, price £50; an improved 4 horse power portable combined thrashing, shaking, and winnowing machine, price £50; an improved 3 horse power ditto, price £48; a 2 horse power thrashing machine, price £28; an improved 2 horse power thrashing machine with straw shakers, price £33; an improved straw-shaker, price £6; an improved 2 horse gear work, price complete, with draw bars, whippletrees, driving shaft, &c., £16; all invented, improved, and manufactured by the exhibiters; model of a patent vortex turbine, invented by James Thomson, Esq., and improved and manufactured by the exhibiters, price £10; a patent short barrel cast-iron lift and force pump, manufactured by John Warner and Sons, of London, price £3 3s.; a web or brush harrow, price £3, 10s.; an improved barrel churn, price £4; a washing wringing, and mangling machine, price £5 10s.; and an improved corn dressing machine, price £5 10s.; invented, improved, and manufactured by the exhibiters.

Barrett, Exall, and Andrewes, of Kate's Grove Iron Works, Reading, Berkshire.

A patent subsoil plough and pulverizer, invented by Mr. Read, of London, improved and manufactured by the exhibiters (received the prizes of the Royal Agricultural Society of England at Southampton, Shrewsbury, Newcastle, Northampton, York, and Chelmsford), price £5; a Hunt's improved press roller, invented by B. Hunt, of Sherborne, and manufactured by the exhibiters, price £12; a large registered clod crusher, invented by John Large, Esq., of Ufton, Berks, and manufactured by the exhibiters, price £15; a two horse power portable steam engine (received the prize at Amsterdam in 1858), price £100; a three horse power ditto, price £120; an eight horse power ditto (obtained the prize medal at the Great Exhibition, 1851, the prize at Lewes, 1852, the high commendation of the Royal Agricultural Society at Carlisle, 1855, the prize of 400 francs and silver medal at Paris, 1856, the gold medal at Vienna, and the grand prize diploma at Pesth, 1857), price £230; a twelve horse power double cylinder portable steam engine, price £310; a four horse power horizontal fixed steam engine, price £110; a six horse power ditto, price £150; a ten horse power ditto (obtained the prize of £10 at the Carlisle Meeting in 1855, the prize of 250 francs and gold medal of honour at Paris, 1856, the gold medal of honour at Vienna, and grand prize diploma at Pesth, 1857, and first prize of £20 at Chester, 1858), price £230; two 54-inch steam power combined portable thrashing machines, price, with wood wheels, £90 and £110; a 30-inch patent thrashing machine, price £32 10s.; a 36-inch patent ditto, price £37; a two horse portable patent thrashing machine (received prize, commendations, and medals from every agricultural society of note in England and Ireland, the prize of 250 francs and gold medals at Vienna, and grand prize diploma at Pesth in 1857), price £31 16s. 6d.; a three horse patent portable thrashing machine and patent horse gear, price £40 3s.; a patent one horse gear and intermediate motion, price £14 17s. 6d.; a four horse patent safety gear, price £22 16s.; a six horse ditto, price £29 18s. 6d.; a portable grinding mill, for horse or steam power, price £21; patent safety chaff cutters of all sizes (highly commended at the meetings of the Royal Agricultural Society of England at Lincoln, Carlisle, and Chester), price £3 6s. 6d. to £15; three sizes of a paragon universal grain mill, price £3 6s. 6d. to £7 12s. (obtained the prize medal of the Great Exhibition, 1851, besides others); an 18-inch patent endless band saw and frame (obtained the silver medal of the Royal Agricultural Society of England at Chelmsford, 1856), price 17s. 2s.; a

36-inch ditto, price £52 5s.; a 54-inch patent perforated beater drum, with spindle and rings, price £12; a registered reverse-action haymaking machine (obtained the prize of the Royal Irish Society, at Dublin, 1851, and a prize of the Royal Agricultural Society of England, at Salisbury, 1857), price £14; a patent horse rake, for hay, &c. (received the prize of the Great Yorkshire Society, at Sheffield, 1852, also a first-class medal of the Royal Irish Society, at Galway), price £7 10s., smaller size £6 18s.; a barley aveller, for hand power (obtained the commendation of the Royal and other Societies), price £5; an oilcake breaker for hand power, price 4*l*. 5s. 6d.; and a grass and seed broadcast sowing machine, price 3*l*. 5s., all invented, improved, and manufactured by the exhibiters; and an American winnowing machine, invented by Grant of America, improved and manufactured by the exhibiters, price 8*l*.

John Bettridge, of Wellsbourne, near Warwick.

A light nine-row corn drill, price £13, invented, improved, and manufactured by the exhibiter; a steerage horse hoe, for general purposes, price £5 10s., improved and manufactured by the exhibiter; a small simple two-row drill, price £2 10s., and a farm gate, hangings, and fastenings, price £1 4s., both invented and manufactured by the exhibiter.

John Clarke and Brothers, of Shiffnal, Salop.

A set of five light seed harrows, price £4 2s., and a set of three-beam harrows, price £4 16s., improved and manufactured by the exhibiters; a set of three-beam seed harrows, price £3 5s, and a horse hoe, or turnip scuffler, price £1 17s., manufactured by the exhibiters; an improved cart, for general purposes, price £16, improved and manufactured by the exhibiters; a pair of iron tubular shafts, price £2 10s.; a set of tubular iron whippletrees, price 15s.; a set of four stretstaffs of tubular iron, price 8s., all invented and manufactured by the exhibiters; two farm gates, price £1 2s. 6d. and £1 4s., improved and manufactured by the exhibiters; a pair of patent iron tubular shafts, suitable for a phaeton, price £1 15s., and a pair of patent tubular iron Brougham shafts, price £1; invented and manufactured by the exhibiters.

Joshua Cooch, of Harleston, near Northampton.

A plough for general purposes, price £4 15s., two improved patent corn dressing machines, price £13 and £14 10s., all invented, improved, and manufactured by the exhibiters (obtained the prize of £10 at the Liverpool meeting, 1841; also a prize of £15 at the Northampton meeting, 1847); a seed dressing machine, price £12 10s., invented and manufactured by the exhibiter; a set of small seed apparatus, price £2, manufactured by the exhibiter; a barley hummeller, price £4 10s, invented and manufactured by the exhibiter; a ditto, price £6, invented, improved, and manufactured by the exhibiter (obtained the prize of £3 at the Derby meeting, 1843, and also a silver medal at the Southampton meeting, 1844); a patent sack holder, price £1, invented by Henry Gilbert, late of St. Leonard's-on-Sea, and manufactured by the exhibiter; a ditto and barrow combined, price £1 10s., invented by Henry Gilbert, late of St. Leonard's-on-Sea, and improved and manufactured by the exhibiter.

William Roberts, Northampton.

A cast-iron ornamental swing cot, price £14 10s.; cast-iron garden seats, price £2 5s. to £6 10s.; several cast-iron garden chairs, price £2 10s.; a cast-iron ornamental fern stand, price £2; a ditto flower stand, price £2 5s.; a circular cast-iron ornamental garden seat, price £13, without table and flower stand £3 less; several patterns of bronzed cast-iron ornamental garden tables, price £1 10s. to £1 15s.; a Berlin black cast-iron smokers' table, price £1 15s.; a bronzed table, price £1 15s.; a bronzed cast-iron ornamental hall table, price £1 17s. 6d.; a Berlin black cast-iron ornamental hall table, price £1 12s. 6d.; a drawing room register stove, fender, and ash pan, price £21; a register stove, with hearth plate and fender, price £15, and a ditto, price £10, all invented and manufactured by the exhibiter; portable mangles, price £3 5s. and upwards; a sack barrow, price 12s. 6d.; a barley aveller, price 10s. 6d., and a revolving barley aveller, price £1, all improved and manufactured by the exhibiter; a pair of door porters, price 8s. 6d.; flower stands, price £2 15s. to £6 10s., invented and manufactured by the exhibiter; a ventilator, price 15s., improved and manufactured by the exhibiter; two ventilators, price 10s. and 15s., and drain grates and frames price 3s. 9d. to 10s. 6d., invented and manufactured by the exhibiter; two stench traps, price 6s. 6d. and 9s., improved and manufactured by the exhibiter; a stench trap, price 8s., invented, improved, and manufactured by the exhibiter; a ditto, price 11s. 6d., invented and manufactured by the exhibiter; a ditto, price 9s., invented, improved, and manufactured by the exhibiter.

Sidney Flavel and Co., of Eagle Foundry, Leamington, Warwickshire.

A model cottage range, price £3, invented by William Bell, of Nottingham, and manufactured by the exhibiters; cottage kitcheners, price £3 5s. and £4 10s., invented and manufactured by the exhibiters; various sizes of kitcheners, price £7 5s. to £60 10s., invented by Mr. Flavel, and improved and manufactured by the exhibiters; a hot plate, hot closet, and grilling stove, price £12, improved and manufactured by the exhibiters; a portable kitchener, price £5, invented and manufactured by the exhibiters.

Richard Garrett and Sons, of Leiston Works, near Saxmundham, Suffolk.

A patent iron plough for deep ploughing, invented by Rudolf Sack, of Loeben, Prussia, and improved and manufactured by the exhibiters, price £7 10s.; a patent self-cleaning clod crusher and roller, price £21, invented by John Patterson, of Beverley, Yorkshire, and improved and manufactured by the exhibiters (received a special medal at the Society's meeting in 1855); a patent self-acting counter-balance lever drag rake, price £8 8s., invented by Thomas Smith, of Bredfield, and manufactured by the exhibiters; an improved chaff-cutting machine, mounted on wheels, and adapted for being driven by steam power, price £15 15s.; an oilcake breaker for hand, horse, or steam power, price £6 10s., and a ditto for hand power, price £4 5s.; improved corn-dressing machines, price £6 5s. to £12 10s. (received the prize of £5 at Chester, 1858); a one-horse power portable open drum thrashing machine, price £32; a two-horse power bolting thrashing machine, price £47, and a six-horse ditto, with straw-shaker and screen, and strong driving gear, price £109 (received the prize of £10 at Chester), all improved and manufactured by the exhibiter; (new implements) patent portable combined thrashing and dressing machines for finishing the corn for market, price £85 to £105, invented by Richd. Garrett, Jun., and Jas. Kerridge, both of Leiston Works, and improved and manufactured by the exhibiters; a five-horse power portable steam engine, price £185; a six-horse power ditto, price £210; a seven-horse power ditto, price £235; a nine-horse ditto, price £250; and and a portable mill, with stones for grinding farm produce, price £65, all improved and manufactured by the exhibiters (received the prize of £10 at Chester, 1858); a drill for general purposes, price £42 (received nine of the Society's money prizes, amounting to £107, and two special medals); and an improved drill for seed and manure on the flat and ridge, with Chambers' patent manure barrel, price £23 15s., both invented by the exhibiters and Mr. T. Chambers, Jun., of Colkirk Hall, and improved and manufactured by the exhibiters (prizes of £10 each at Cambridge, Northampton, York, and Gloucester, £5 at Carlisle, and the great council medal were awarded for this drill); a three-row economic seed and manure drill, price £12 12s., invented, improved, and manufactured by the exhibiters (prizes of £5 each at Lewes, Gloucester, and Lincoln); improved Suffolk prize lever corn and seed drills, price £22 and £25 (the prize of £10 at Norwich, 1849); improved corn and seed drills for small occupations, price £15 and £17 (prizes of £10 at Exeter in 1850, £5 at Lewes in 1852, and £2 at Salisbury in 1858 were awarded for this drill), all improved and manufactured by the exhibiters; a patent combined seed and liquid manure drop drill, price £22, invented by Mr Thos. Chambers, Jun., of Colkirk Hall, and Mr. Thos. Chandler, of Aldbourn, and improved and manufactured by the exhibiters; a patent drop lever, price £2 7s 6d., and a patent broadcast manure distributor, price £18, invented by Mr. T. Chambers, Jun., of Colkirk Hall, and improved and manufactured by the exhibiters (obtained prizes at Lincoln in 1854, at Carlisle in 1855, and at Salisbury in 1857); a patent prize horse hoe, price £18, invented, improved, and manufactured by the exhibiters (obtained in 14 prizes 65*l*. and 5 medals); a broadcast seed sowing machine, price £4 10s., improved and manufactured by the exhibiters; patent lever horse hoes, price £13 and £17, invented by John Taylor, of Annesley Park, Notts, and improved and manufactured by the exhibiters; a patent combined turnip hoe and thinner, price £8 8s., invented by John Horton, of Ashburton, and improved and manufactured by the exhibiters.

John Lake Baker, of Hargrave, near Kimbolton, Huntingdonshire.

(New implement) a farm gate, price £1 4s., invented and improved by the exhibiter, and manufactured by William Eaton, of Dean, Bedfordshire; Specimen Draining Pipes, price £1 to £4 10s. per 1000, manufactured by Williams' tile machine, the property of the exhibiter; a farm gate, price £2 2s., invented and improved by the exhibiter, and manufactured by William Eaton, of Dean, Bedfordshire; a ditto, price £1 1s., manufactured by William Eaton, of Dean, Bedfordshire.

Ch. Hanson, Secretary to Bray's Traction Engine Company (Limited), of 12, Pall Mall East, London.

(New implement), a traction engine, invented by William Bray, of Folkestone, Kent, and manufactured by R. and T. Hughes, of New Cross, London, price £875; (new implement) a traction engine, invented by William Bray, of Folkestone, Kent, improved by the Company, and manufactured by James Taylor and Co., of Birkenhead, price £675.

James Haywood, Jun., of the Phœnix Foundry, Derby.

A 5 horse power portable steam engine, price £180; a 4-horse power portable steam engine, with vertical cylinder, price £135; a 4 horse portable combined thrashing-machine, price £90; a 3 horse power portable steam engine with vertical cylinder, price £95; a 3 horse portable combined thrashing machine, price £75; a 2 horse power portable thrashing-machine price £50; a 2-horse power fixed steam engine, with vertical cylinder, price, complete £65; a 4 horse power fixed steam engine, with vertical cylinder, price, complete £105; a portable circular saw bench, price £16; a double barrel liquid manure pump, price £35; a portable grinding mill, with 24 inch Derbyshire Peak stones, price £22; and a portable grinding mill, with 18 inch Derbyshire Peak stones, price £17 10s., all invented, improved, and manufactured by the exhibiter; a pair of Medici vases and pedestals in cast iron, price, vases 70s., pedestals 50s. each; and a pair of cast iron ornamental vases and pedestals, price, vases 30s., pedestals 21s. each, invented and manufactured by the exhibiter; cast iron ornamental vases and pedestals, manufactured by the exhibiter, price, vases 20s., pedestals 15s. each and upwards; cast iron ornamental garden chairs (oak pattern), invented and manufactured by the exhibiter, price 30s. each; a cast-iron ornamental single garden chair, price 17s. 6d.; a cast-iron ornamental garden chair (octagon shape), intended to be fixed round a tree, price £7 10s.; a cast iron ornamental table, with revolving top, price 35s.; an assortment of cast iron fruit plates, price 2s. 6d. each; and a pair of cast-iron ornamental vases and pedestals, price, vases 30s., pedestals 15s. each; invented and manufactured by the exhibiter.

Holmes & Sons, of Prospect Place Works, Norwich, Norfolk.

An improved portable steam engine of 8-horse power, improved and manufactured by the exhibiters, price £230; a new portable saw bench, with self acting feed motion, suitable to be driven by portable engines, price £60; a portable circular saw bench, price £16, invented, improved, and manufactured by the exhibiters; a portable seed sheller, with dressing apparatus, invented and manufactured by the exhibiters, price £50; a corn dressing and winnowing machine, price £5 10s.; an improved manure distributor, for small and large quantities, price £14; an improved drill for corn or general purposes, price £28; an improved seed and manure drill, for large occupations, price £20; the Bath and West of England and royal Carlisle prize economical seed and manure drill, price £13 13s.; a 13 row lever Salisbury prize corn drill, awarded the Royal Agricultural Society's first prize at Salisbury, price £25; and an 11 row lever prize corn drill, price £22 10s., invented, improved, and manufactured by the exhibiters; a 7 row small occupation corn drill, invented and manufactured by the exhibiters, price £14 14s.; a 1 row lever hand seed drill, with cups, invented, improved, and manufactured by the exhibiters, price 40s.; a broadcast machine for sowing all kinds of grain, price £10; a 2-row hand drill, for turnips or mangold wurtzel, ridge or flat, price 55s.; and a wrought iron land roller, price £6 10s.; invented and manufactured by the exhibiters.

Isaac James, of Tivoli Waggon Works, near Cheltenham, Gloucestershire.

(New implement) a prize liquid manure distributor, or water cart, invented, improved, and manufactured by the exhibiter, awarded a £2 prize at the Salisbury show, also 7 other prizes at different agricultural shows, price £24, smaller size £20; (new implement) an improved liquid manure and general portable pump, price 63s. 6d., invented, improved, and manufactured by J. Warner, of London; (new implement) a patent economic washing machine, price £8 10s. down to £5; and (new implement) an improved light strong one horse cart, for general purposes, price £11 11s., improved and manufactured by the exhibitor.

Joseph Edward Kirby, of Banbury, Oxfordshire.

A combined 6 horse thrashing, shaking, and finishing machine, with barley horner, price £100; and a 3 horse combined thrashing, shaking, and winnowing machine, price £55; a 2 horse portable steam engine, manufactured by Hayes, of Stony Stratford, price £75; a winnowing and dressing machine, price £9; a 2 horse gear work, price £14; a 1 horse gear work, price £10; a 5 furrow seed and corn drill. price 7*l.* 10s.; a 3 row seed and corn drill, price 4*l.* 10s.; a 1 furrow cup turnip and mangold drill, price 45s.; a 1 furrow turnip and mangold drill, for sowing between beans, price 25s.; a 1 furrow brush turnip and mangold drill, price 45s.; and an iron sack barrow, price 12*l.* 6s., improved and manufactured by the exhibiter; a light farmers' general purpose waggon, price 25*l.*

F. P. Walker, & Co., of 42, Market-street, Manchester.

A chaff-cutting machine, price £7 10s.; and a chaff and litter machine (new implement), price £13 10s., invented by F. P. Walker, and manufactured by the exhibiters; a new lawn-mowing machine, price £6 and £6 10s.; and a bean, pea, oat, and Indian corn kibbling mill, price £4 15s., invented, improved, and manufactured by Picksley and Sims, of Leigh, Lancashire.

David Prosser, of Harescomb, near Stroud, Gloucester.

Three sizes of an iron pig trough, improved by the exhibiter, and manufactured by Hill and Smith, of Brierley-hill, Staffordshire, price 16s., £1 9s., and £2 2s.

Thomas Riley, of Balsall-street, near Berkeswell, Coventry, Warwickshire.

An iron plough, price £4 12s.; and a turnip hoe, price £2 12s., improved and manufactured by the exhibiter.

John S. A. Shuttleworth, of Hathersage Hall, Sheffield, Yorkshire.

A pair of Peak millstones, 4 feet 6 inches diameter manufactured by the exhibiter, price £12 12s.

James Mellard, of Rugeley, Staffordshire.

A general purpose plough, price £4 5s.; and a ridge or double-breast plough, price £3, manufactured by the exhibiter; a parellel lever subsoil plough, invented by Gray and Son, Uddingstone, and manufactured by the exhibiter, price £5 10s.; a chain harrow, improved and manufactured by the exhibiter, price £3 7s. 6d.; a patent self-relieving chain harrow, invented by Cartwright, of Shrewsbury, and manufactured by the exhibiter, price £4; a five-tined cultivator, grubber, and paring plough, price £4 10s.; a seven-tined cultivator, grubber, and paring plough, price £6, improved and manufactured by the exhibiter (received several prizes, and a silver medal from the Staffordshire Agricultural Society); a Tennant's grubber on wheels, price £4 15s, a three-tined horse-hoe, price,

£1 10s., and a five-tined lever horse-hoe, price £2 5s., manufactured by the exhibiter; a three-tined root grubber, invented and manufactured by the exhibiter, price £2 10s.; two improved press-wheel rollers and clod-crushers, invented by W. Cambridge, of Bristol, and manufactured by the exhibiter, price £8 and £16; a two-furrow turnip and mangold drill, invented, improved, and manufactured by the exhibiter, price £5 10s.; a two-furrow presser, with drilling apparatus, price £8 10s., invented by J. Bright, Esq., of Teddesley, improved and manufactured by the exhibiter; a horse-rake, with steeled teeth, and improved lever, price £6 10s., manufactured by the exhibiter; a patent field stile, price £2, invented by Thomas Lyne, of Malmsbury, and manufactured by the exhibiter; a cast cockle or heat box, price 12s., invented and manufactured by the exhibiter; two ornamental garden chairs, price £1 6s. and £1 12s.; two ornamental rustic garden chair, price £1 3s., manufactured by the exhibiter; an ornamental flower-pot stand, price 15s., designed and manufactured by the exhibiter; liquid manure taps, price 3s. 6d. and 4s. 6d., invented and manufactured by the exhibiter; treacle taps, price 2s and 2s. 6d., manufactured by the exhibiter; an assortment of poultry troughs, price 9d., 1s., 1s 6d., and 6s. 6d., invented by Barnard and Bishop, and manufactured by the exhibiter; a circular pig trough (No. 1), 22 inches diameter, with eight divisions, price 12s. and upwards, manufactured by the exhibiter; a pair of 2½-inch cart arms and boxes, price £1 3s. 4d.; an improved carriage jack, price 8s. 6d.; an improved corn stack pillar, with mushroom top, price 5s. 9d.; an improved Rugeley Economic cooking range, price £5, manufactured by the exhibiter; a 2-knife economic chaff-cutter on neat cast-iron frame, price £2 2s. to £3 15s.; an improved chaff-cutter, price £6 5s. (new implement), invented, improved, and manufactured by the exhibiter; an improved Corne's chaff-cutting machine, price £10 10s., invented by J. Cornes, of Barbridge, improved and manufactured by the exhibiter; a corn-crusher, price £4 15s.; a strong corn-crusher, price £9 10s., invented by Richmond and Chandler, improved and manufactured by the exhibiter; a roller malt mill, price £5 15s., manufactured by the exhibiter; an improved cake-breaker, price £2 15s.; a strong double roller cake-breaker, price £4 10s., invented, improved, and manufactured by the exhibiter; a 3-knife turnip-slicer on iron frame, with wheels to remove, price £3; an improved double-action Gardner's turnip cutter, price £5, improved and manufactured by the exhibiter; a cheese press, price £1 13s.; an improved compound lever cheese press, price £3 5s. (received three prizes from the Staffordshire Agricultural Society), invented, improved, and manufactured by the exhibiter; a cheese stool for heating cheese, price 9s., manufactured by the exhibiter; a curd mill, price £1 10s.; and a galvanized portable liquid manure pump, price £2 7s. improved and manufactured by the exhibiter.

Robert and John Reeves, of Bratton, near Westbury, Wiltshire.

A two-wheel iron plough, price £4 16s. 6d., and a one-wheel iron plough, price £4 3s. 6d., invented, improved, and manufactured by the exhibiters; a set of tubular iron whippletrees, price 14s., manufactured by the exhibiters; a patent two or three-row drill for liquid manure and seed, 4½ feet wide, for ridge and flat, price of drill without the droppers £26, invented by Thomas Chandler of Aldbourn, and improved and manufactured by the exhibiters (the Royal Agricultural Society of England awarded a silver medal to this drill at York, 1848, a prize at Norwich, 1849, a prize at Exeter, 1850, a special prize at Gloucester, 1853, a prize at Lincoln, 1854, and at Carlisle, 1855); a patent two or three-row drill for liquid manure and seeds, price £23 10s.; a patent broadcast dry manure distributor, price £10, invented, improved, and manufactured by the exhibiters (received a prize at Salisbury, it has also received all the prizes it has competed for at other societies since that time); (new implement) a patent manure distributor in rows, price £10, invented and manufactured by the exhibiters; a patent economical drill for dry manure and seed, price £10 (a silver medal was awarded to this drill at Salisbury, 1857); a patent economical drill for manure and seed on the ridge, price £11; and a small occupation corn drill, prize £16, invented, improved, and manufactured by the exhibiters.

Richmond and Chandler, of Salford, near Manchester and Liverpool.

A chaff-cutting machine (new implement), price £2 10s.; several specimens of various chaff-cutting machines, price £3 15s. and upwards to £15, invented, improved, and manufactured by the exhibiters; a four-horse power portable steam-engine, price £165, invented, improved, and manufactured by Clayton, Shuttleworth, and Co. of London; a corn crusher, price £5 5s.; two bean and oat crushers, price £6 10s. and £10 12s.; a linseed mill, price £6 10s.; a linseed and oat mill for power, price £14 15s,; a vegetable or root washer, price £4 4s.; a steaming apparatus, price £6 9s.; (new implement) a 1 horse gear, price £12 10s.; a turnip-cutter (double action), price £5, invented, improved, and manufactured by the exhibiters; (new implement) a kneading machine, price £10, invented by John Hodgkinson, of Atherton, improved and manufactured by the exhibiters; a patent sackholder, price £1 3s., invented by Dr. Gilbert, of London, improved and manufactured by the exhibiters; and a sack-truck and holder combined, price £1 12s., invented by Joshua Gooch, of Harleston, and improved and manufactured by the exhibiters.

William Smith, of Kettering, Northamptonshire.

Three improved double-blast winnowing machines, price £6 10s., £9 9s. and £11 11s. (awarded a prize of £5 at the Yorkshire Agricultural Society's Meeting, and also three prizes at other meetings); three new patent steerage horse-hoes, price £6 10s., £7, and £7 10s. (a prize of £[illegible] was awarded to this implement at Salisbury, and a special prize at York, 1857, commended by the judges at Carlisle, 1855, and received a first-class medal at Paris, in 1855, and 100 francs in 1856, and also a prize of £6 at Athlone, in 1856); and improved two-knife chaff machine, price £3 15s., and an improved sack truck, price 12s., all invented, improved, and manufactured by the exhibiters.

William Tasker and Sons, of Waterloo Iron Works, Andover, Hampshire.

(New implements) four patent iron ploughs, price £5 to £5 3s. 6d.; ditto, price £4 19s., invented, improved, and manufactured by the exhibiters; a set of 4-beam diagonal iron harrows, price £4 1s., invented by Samuel Lawrence Taylor, of Cotton End, and manufactured by the exhibiters (obtained a prize at the meeting of the Royal Agricultural Society at Derby in 1843, at Southampton in 1844, at Shrewsbury in 1845, at Northampton in 1847, at Norwich in 1849, at Exeter in 1850, the prize medal at the Great Exhibition of 1851, a prize at Lewes in 1852, at Gloucester in 1853, and a prize of £3 at Chelmsford in 1856); two iron field rollers, price £9 and £12 4s., improved and manufactured by the exhibiters; a ditto, price £9, invented, improved, and manufactured by the exhibiters; a 3-wheel land presser, price, fitted with wheels, 36 inches diameter, £9 5s., and a corn drill for thirteen rows, price £29, invented, improved, and manufactured by the exhibiters; an iron horse rake, price £7 3s., manufactured by the exhibiters; a 2 and 4-horse power portable thrashing machine, price £34 13s. 6d. and £52 10s., invented, improved, and manufactured by the exhibiters; an 8-horse power outside-cylinder portable steam engine, price £236 10s., invented, improved, and manufactured by Clayton, Shuttleworth, and Co., Lincoln (this engine has received a prize of £25 at the Royal Agricultural Society's meeting at Norwich, £25 at Exeter, and a prize medal at the Great Exhibition of 1851); (new implement) a patent steam power combined thrashing machine, price £114, invented, improved, and manufactured by the exhibiters.

Wallis and Haslam, of North Hants Foundry, near Basingstoke, Hampshire.

A 7-horse power portable steam engine, price £215, and a combined portable single-blower thrashing, straw-shaking, and winnowing machine, price £105, invented by Clayton and Shuttleworth, of Lincoln; a 4-horse power patent portable thrashing machine, and gearwork for horses, price £50 7s., invented, improved, and manufactured by the exhibiters; a patent portable straw elevator, price £59, invented by James Hayes, of Elton, and improved and manufactured by the exhibiters; a 3-horse patent portable thrashing machine and improved horse-works, price, if to fix £37, invented, improved, and manufactured by the exhibiters; a 2-horse patent portable thrashing machine and horse-works, price, if to fix on stout oak frame £30, invented by the exhibiters; a 1-horse patent thrashing machine and 1-horse gearwork, or by hand power, price £26 10s., invented by Rawlings, of Collingbourne, and improved and manufactured by the exhibiters; a patent winnowing and corn dressing machine, price £14 5s., invented by Boby and Bridgeman, of Bury St. Edmunds, and improved and manufactured by the exhibiters; a Scotch winnowing machine for dressing corn, price £10, and a corn blower or small dressing machine, price £4 15s., invented by the exhibiters; patent corn screens, price £6 13s. to £10, invented by Boby and Bridgeman, of Bury St. Edmunds; improved 2-wheel iron ploughs, price 80s. to 85s. 6d.; a 1-wheel iron plough, price 69s.; a light 2-wheel iron plough, price 73s. 6d.; a 1-wheel iron plough, price 65s.; a pony plough, price 40s.; a 2-wheel horse-hoe, price 50s.; and two horse-hoes with one wheel, price 38s. and 50s., invented by the exhibiters; a 3-row horse-hoe for roots or corn, with swing steerage, price £6 15s.; a set of chain harrows, patent self-cleaning, price 90s., invented by John Cartwright; a wheel-roller or clod-crusher, price £12 15s., invented by Cambridge; a registered clod-crusher or wheel-roller, price £14 15s., invented by Charles Haslam, of Basingstoke, and improved by the exhibiters (obtained the commendation of the Royal Agricultural Society at their Chelmsford meeting); two field rollers for land with three cylinders, price £7 7s. and £8, invented by the exhibiters; a machine for drilling iron by hand or other power, price, without frame 88s.; a barley hummeller for hand-power, price 90s.; a hampshire harvest-cart for one horse, price £9; a pair of 1¼in. patent self-adjusting spherical bearings, price 9s. each (highly commended at the meeting of the society at Chester); a pair of 1½in. patent ditto, price 11s. 6d. each; and a pair of 2in. patent ditto, price 24s. each, invented, improved, and manufactured by the exhibiters.

J. Warren, of Maldon, Essex.

Two patent iron beam expanding ploughs, price 85s. and 95s., and a ditto wood beam, price 70s., invented and manufactured by the exhibiter; a set of 4 harrows, price 80s., improved and manufactured by the exhibiter; a cultivator, price £7, invented, improved, and manufactured by the exhibiter; a double iron roll, price £8 8s.; a ditto, price £12, improved by the exhibiter; a double tom or ridging plough, price 84s., invented and improved by the exhibiter; patent iron beam ploughs, price 80s. to 87s. 6d.; patent expanding ploughs, price 50s. and upwards; a light plough, with wood beam, price 55s.; three Cambridge ploughs, price 50s. to 55s., all invented and manufactured by the exhibiters; a garden plough, price 45s., invented, improved, and manufactured by the exhibiter; three Essex or Goldhanger ploughs, price 45s. and 53s., manufactured by the exhibiter; a T. W. plough, with wood beam, price 50s., invented, improved, and manufactured by the exhibiter; a turnwrest plough, price £1, improved and manufactured by the exhibiter; a patent iron beam expanding plough, price 87s. 6d., and two double tom or ridging ploughs, price 55s., invented and manufactured by the exhibiter; a mangel or furrow horse-hoe plough, price 40s., and a broadshare plough, with iron beam, price £5, improved and manufactured by the exhibiter; a surface skim plough, price 70s., invented and manufactured by the exhibiter; a mangel or furrow horse-hoe, price 52s. 6d.; oilcake mills, price 40s. to 65s.; an iron plough sleed, made of iron or wood, price 10s. 6d.; and a set of whippletrees, price 10s. 6d., all improved and manufactured by the exhibiter.

George Ball, of North Kilworth, near Rugby, Warwickshire.

An iron plough, price 88s. (the only plough which has gained a first class prize medal at each of the three great national exhibitions, viz., England, Ireland, and France, also a prize of £5 at the Royal Society's meeting at Norwich 1849, Exeter 1850, commended at Lincoln 1854, Carlisle 1855, a first class prize medal at Melbourne 1856, and a prize at Chelmsford the same year); three ditto, price 88s., all invented by William Ball, of Rothwell, and manufactured by the exhibiter; two double ploughs, price £7 10s., and a 3 or 4-horse waggon, price £35, invented, improved, and manufactured by the exhibiter; a 1-horse cart, price £14 10s. (a first-class prize was awarded for a similar cart at the Royal Agricultural Society's meeting at Salisbury 1857, and two more county prizes); a 2-horse cart, price £15; an iron scarifier, cultivator, or grubber, price £6 6s. each; and an iron scarifier, price £7 10s., improved and manufactured by the exhibiter; a set of 2-horse harrows, price 84s., and a set of 3-horse iron harrows, price 90s., improved by William Williams, of Bedford, and manufactured by the exhibiter.

Adam C. Bamlett, of Middleton Tyas, near Richmond, Yorkshire.

(New implement) a cultivator, price 9*l.*; (new implement) a reaping machine, price 36*l.*; and (new implement) a reaping machine, price 38*l.*, invented and manufactnred by the exhibiter.

William Bloxsom, of Gillmorton, near Lutterworth, Leicestershire.

A four horse power portable steam engine, price 140*l.*, and a two-and-a-half horse portable stesm engine, price 80*l.*, invented and improved by Martin Bloxsom, of Gillmorton, and manufactured by the exhibiter.

Thomas Allcock, of Ratcliff-on-Trent, near Nottingham.

A chaff cutting machine, with two knives, invented, improved, and manufactured by the exhibiter, price, at Nottingham station, 13*l.*; a chaff cutting machine, with two knives, invented and manufactured by the exhibiter, price, as above, £5 10s; a chaff cutting machine with two knives, improved and manufactured by the exhibiter, price, as above, 45s.; a horse rake, price, as above, £6 15s.; and a horse hoe, price 55s., invented and manufactured by she exhibiter.

Edward Hammond Bentall, of Heybridge, near Maldon, Essex; Swan-lane, Upper Thames-street, London, E.C.; and 48, Rue des Marais St. Martin, Paris.

A patent plough, price 53s. 6d.; a patent plough (obtained two prizes of 80s. and 40s. at the Chelmsford meeting in 1856), price 70s.; a set of Bentall's patent four-beamed heavy or drag harrows, price 85s.; a set of Bentall's patent three-beamed ditto, price 94s. 6d; a set of Bentall's patent four-beamed light harrows (obtained a prize of 40s. at the Chelmsford meeting in 1856), price 73s.; a set of Bentall's patent three-beamed ditto, price £5 9s. 6d.; a set of Bentall's patent four-beamed light seed harrows, price 58s. 6d.; a set of Bentall's patent three-beamed light seed harrows, price 73s.; a Bentall's patent prize light subsoil plough, price 70s.; a Bentall's patent prize light broadshare and subsoil plough, price £6 6s.; a Bentall's patent prize light broadshare, cultivator, scarifier, and subsoil plough (obtained three prizes at the Chelmsford meeting in 1856, namely, 60s. as a cultivator adapted for heavy land, 60s. as a cultivator adapted for light land, and 40s. as a scarifier or parer), price £7 17s. 6d. and £8 18s. 6d.; a Bentall's patent prize broadshare scarifier and snbsoil plough (received the prize of £5 as a pair-horse scarifier at the Royal Agricultural Society's meeting at Exeter 1850; £5 as the best cultivator, grubber, and scarifier at Lincoln, 1854; two medals as a cultivator and as a subsoil plough at the Great Exhibition of 1851; also the first prize of £5 as the best subsoil plough at the Chelmsford meeting in 1856), price £6 6s.; a Bentall's patent light iron broadshare, price £5 15s. 6d.; a Bentall's patent broadshare and subsoil plough, price £6 6s.; a Bentall's patent light broadshare plough, price £5 5s.; a Bentall's patent prize light broadshare and cultivator, price 90s. and 80s. (obtained the first prize at the Norfolk Agricultural Association's Meeting at Swaffham in 1857); a Bentall's patent light three-tined grubber and cultivator (received the first prize of £5 as the best grubber at the Great Yorkshire Agricultural meeting at Northallerton in 1854, price 47s. 6d.; and a Bentall's patent Salisbury prize double-ridge horse hoe, price 73s. 6d., all invented, improved, and manufactured by the exhibiter (this hoe was awarded a prize of 30s. at the Salisbury meeting of the Royal Agricultural Society in 1857); a Bentall's patent single-ridge horse hoe, improved and manufactured by the exhibiter, price 42s.; a Bentall's patent combined ridging plough and horse hoe, price 54s. 6d.; a Bentall's wood-beamed mangel hoe, price 42s.; and a Bentall's double tom and mangel plough, price 75s., invented, improved, and manufactured by the exhibiter; a Bentall's improved horse rake, price £8; and a Bentall's improved chaff cutter, price 52s. 6d., improved and manufactured by the exhibiter; a Bentall's improved chaff cutter, invented, improved, and manufactured by the exhibiter, price £7; a Gardner's patent turnip cutter, invented by the late James Gardner, of Banbury, improved and manufactured by the exhibiter, price 90s.; a Bentall's patent prize root pulper (obtained the only prize of £5, awarded to root pulpers at the Chester Meeting of the Royal Agricultural Society, 1858), price from £5 5s. to £8 8s.; a Bentall's first prize oilcake mill (obtained the first prize of 5*l.* at the Society'a Meeting at Chester, 1858), price from 40s. to £5 5s.; Bentall's improved circular hog troughs, price 10s. to 16s.; and Bentall's improved circular pig or sheep troughs, price 7s. 6d., invented, improved, and manufactured by the exhibiter; and a great variety of Bentall's improved pig troughs, improved and manufactured by the exhibiter, price 3s. 4d. and upwards.

John Bruce, of Tiddington, near Stratford-on-Avon, Warwickshire.

A registered skim or paring plough (obtained a prize at Southampton in 1844 of 5*l.*, and at Shrewsbury in 1845 of 5*l.*), price 7*l.*; and a plough, with subsoil attached, price 7*l.* 7s., invented, improved, and manufactured by the exhibiter (a prize was awarded to this implement at Derby in 1843 of 5*l.*; a plough, for light land, with improved coulter fastenings, and skim, price 95s.; and a drill for general purposes, price 26*l.* 10s., improved and manufactured by the exhibiter; a cup drill for two or three rows, invented and manufactured by the exhibiter, price 5*l.*; a double-breasted or ridging plough, improved and manufactured by the exhibiter, price 80s.; a scarifier or drag, price 5*l.*, and a horse hoe for general purposes- price 84s., invented and manufactured by the exhibiter; and a barrow seed sower, improved and manufactured by the exhibiter, price 63s.

William C. Cambbidge, of St. Phillip's Iron Works, Bristol.

An improved iron plough, with two wheels, price 5*l.* and 90s.; an improved iron plough, with one wheel, price 80s. and 90*l*; a patent jointed self-expanding chain harrow, price 75s. to 6*l.*; a patent double-action press wheel roller and clod crusher (obtained the first prize at the Bath and West of England Society' Meeting, held at Cardiff in June, 1858, first prize medal at the Melbourne Show, Australia; and first prize medal at the Geelong Show, 1858), price from 10*l.* to 18*l.*; an improved lever horse rake, price 7*l.* 10s.; a patent improved winnowing machine, price 10*l* 10s.; a seven horse power portable steam engine, price 215*l.*; a patent portable combined thrashing machine, price 100*l.*; a three horse power portable steam engine, price 140*l.*; and a portable combined thrashing machine, price 55*l.*; all invented, improved, and manufactured by the exhibiter.

John Cartwright, of Shrewsbury, Salop.

(New implement) a double patent action combined clod crusher and press wheel roller, invented, improved, and manufactured by the exhibiter, price 15*l.* 10s.; (new implement) a patent wood-cutter's machine, price 5*l.* 5s.; and (new implement) a patent compound lever mattock, price 21s., invented and improved by Duppa Duppa, Esq., of Wistanstow, and manufactured by the exhibiter; an improved two horse gear work, price 10*l.* 10s.; a patent intermediate motion, price 5*l.* 5s.; and an improved chaff cutter, with three knives, price 10*l.* 10s., invented, improved, and manufactured by the exhibiter; a patent compound action mill, invented improved, and manufactured by John Patterson and Co.. of Beverley, price 15*l.*; a patent prize root pulper, invented, improved, and manufactured by E. H. Bentall, of Heybridge, price 8*l.* 8s.; a two horse power barn work, for thrashing machine, invented, improved, and manufactured by the exhibiter, price 10*l* 10s.; a patent wheat mill and dressing machine combined, invented, improved, and manufactured by Lloyd and Son, of London, price 9*l.*; an improved barrel churn, for power, 50 gallons, invented, improved, and manufactured by Robinson and Son, of Coventry, price 87s. 6d.; a combined winnowing or corn dressing machine, also a first-rate blower, price 8*l.* 5s.; a patent light self-relieving chain harrow for two horses, price 85s.; a medium self-relieving chain harrow for two horses, price 95s.; a patent self-relieving chain harrow, for three horses, price 5*l.* 5s.; and a patent medium self-relieving chain harrow, for one horse, price 67s. 6d., invented, improved, and manufactured by the exhibiter.

Coleman and Son, of Chelmsford, Essex.

A patent double five-prong cultivator, for steam-power, invented and manufactured by the exhibiters, price £40; a patent clod-crusher, price £21; a patent seven-prong cultivator, grubber, or scarifier, price £14 10s.; two patent five-prong ditto (the Royal Agricultural Society of England awarded first prizes to it, at Gloucester, in 1853, and at Chelmsford, 1856), price 7*l.* and 7*l.* 15s.; a patent five-prong cultivator, grubber, or scarifier, price reduced to £9; and two patent seven-prong ditto, prices reduced to £11 and £13, invented by Richard Coleman, improved and manufactured by the exhibiters; a patent potato-digger, invented by John Hanson, of Doagh, improved and manufactured by the exhibiters, price £17. 10s.

James Comins, of Southmolton, Devonshire.

A paring plough (this implement received the prize of the Bath and West of England Agricultural Society's Meeting, held at Taunton, June, 1852), price £4 15s.; a registered one-way turn-over or turn-rest plough, price £4 15s.; (new implement), a new-pattern one-way turn-over or turn-rest plough, price £3 15s.; a subsoil pulverizer (awarded the prize of £5 at the Royal Agricultural Society's Meeting at Norwich, July, 1849), price £4 10s.; a set of general purpose improved zigzag harrows, price £4 10s.; a pair of general purpose improved zigzag harrows, price £3 1s. 6d.; a set of improved light harrows, price £3 10s; a four-horse cultivator, grubber, and scarifier, price £10 10s.; a horse-hoe (was awarded a prize medal at the Great Exhibition, 1851), price £3; and a horse-hoe for general purposes, price £2, all invented, improved, and manufactured by the exhibiter.

W. M. Cranston, of 11, New Broad-street, London.

A Wood's prize combined reaper and mower (awarded the first prize of £25 as the best reaper, and £20 as the best mower, at the Royal Agricultural Improvement Society's trial at Londonderry, August, 1853), price £35; and (new implement), a Wood's one-horse mowing machine, price £20, invented and manufactured by Walter A. Wood, Hoosick Falls, State of New York, U. S. A.

A. and W. Eddington, of Chelmsford, Essex.

(New implenent) a draining windlass, patented and mafactured by the exhibiters, price £160; a drainage plough, invented by John Fowler, jun., of London, and manufactured by Fowler and Fry, Bristol, price £85; a portable steam engine, manufactured by Clayton, Shuttleworth, and Co., of Lincoln, price £235; (new implement) a windlass for steam cultivation, patented, invented by Alfred Eddington, of Chelmsford, and manufactured by the exhibiters, price £200; and a patent surface plough, invented by J. Fowler, jun., of London, manufactured by Ransomes and Sims, of Ipswich, price £95.

Job Ellis and Sons, Oswestry, Shropshire.

An eight-horse power portable steam engine, price £230; a six-horse power fixed steam engine, price £155; a combined portable thrashing, shaking, riddling, and dressing machine, for finishing the corn for market at one operation, price £115, invented, improved, and manufactured by the exhibiters.

A. and T. Fry, of Bristol.

A family Cobourg, improved and manufactured by the exhibiters, price £38; an improved Hannam's skeleton harvest cart, invented by J. Hannam, of Burcott Park, Oxon, and improved and manufactured by the exhibiters, price £16 10s.; a Newport prize cart (gained a prize of £3 at Salisbury, 1857, price £15 10s.; and an improved iron watering cart, price £24, invented, improved, and manufactured by the exhibiters; a registered tumbler cart (B size), invented by R. Stratton, of Bristol. and improved and manufactured by the exhibiters, price £31; a corn dressing machine, improved and manufactured by the exhibiters, price £6 6s.; a corn-dressing machine, price £8; an improved iron-frame chaff machine, price £6; an iron-frame chaff machine, price £10 10s.; and an improved oilcake crusher, price £3 12s. 6d., invented, improved, and manufactured by the exhibiters; an American iron-pointed horse rake, improved and manufactured by the exhibiters, price £1 10s. and upwards; a grass drill (received the following prizes: from the Bath and West of England Agricultural Society, at Plymouth, June, 1853, £2; at Bath, June, 1854, £2; at Tiverton, June, 1855, £2; at Yeovil, 1856, £2; from the Royal Agricultural Society of Ireland, at Athlone, August, 1856, £3; and at Waterford, August, 1857, £5), price £3 10s.; and a two-row seed and manure drill, price £17, improved and manufactured by the exhibiters; an iron horse hoe, invented by Robert Cozens, of Pilton. and improved and manufactured by the exhibiters, price £3 10s. and upwards (a special prize of £3 at the Bath and West of England meeting, at Yeovil, June, 1856; £2 at the Royal Agricultural Improvement Society of Ireland's meeting, at Waterford, August, 1857; and commended at Salisbury, July, 1857); a double-action turnip cutter, price £5 10s.; and a single-action turnip cutter, price £4 10s., invented by J. Gardner, of Banbury, and improved and manufactured by the exhibiters; a root grater, price £3 10s. and £5, invented by Bushe and Barter, of Lismore, Ireland, and improved and manufactured by the exhibiters; an oat and bean mill, price £4 4s., invented, improved, and manufactured by the exhibiters; and a selection of spring balances, prices from 4s. to 5s.

William Gilbert, of Shippon, near Abingdon, Berkshire.

An 11-lever corn and seed drill, with improved fore-carriage steerage, price £28 14s., invented and manufactured by the exhibiters; (new implement) a combined roller presser and clod crusher, price £14, invented and manufactured by Alexander Aldworth, of Abingdon.

W. Goulding and Co., of Short-street Works, Leicester.

Several specimens of a patent iron plough, price £4 15s. and upwards; a wood-beam plough, price £3 3s.; a strong wood-beam plough, price £3 18s.; (new implement) a non-furrow-turning plough, or cultivator, price £4 10s.; (new implement) a pair of patent oil-box wheels, price 12s. 6d. per pair; two moulding, or ridging ploughs, price £3 15s. and £4; a moulding plough, with horse hoe and scarifier combined, price £5 10s.; a five-pronged cultivator, grubber, or scarifier, price £8; a seven-pronged ditto, price £10; a seven-pronged light cultivator, or scarifier, price £9; ditto without lever lift, price £6; a wrought-iron horse hoe, price £1 15s.; a subsoil plough, price 3*l.*; two sets of wood whippletrees, price 10s.; three sets of improved iron harrows, price 3*l.* to 4*l.* 4s.; a set of improved lever harrows, price 2*l.* 7s. 6d.; one-row turnip and mangel drills, price 2*l.* 7s. 6d. and 3*l.* 6s.; a one-row turnip, mangel, and manure drill, price 6*l.* 15s.; a four-row corn and seed drill, price 5*l.* 10s.; and a lever corn drill, price 13*l.* 13s., all invented and manufactured by the exhibiters; (new implement) a patent one-row turnip, mangel wurtzel, and artificial-manure drill, on the flat, price 10*l.* 10s., invented by John Lakin, jun., of Hall End, Tamworth, and manufactured by the exhibiters; two improved oilcake breakers, price 3*l.* 3s. and 3*l.* 7s. 6d., improved and manufactured by the exhibiters; corn crushers or kibbling mills, price 4*l.* 4s. and upwards; a fourteen-knife root pulper, price, with two handles, 5*l.* 5s.; an eight-knife root pulper, price 4*l.* 10s. and a six-knife root pulper, price 4*l.* 10s., invented, improved, and manufactured by the exhibiters; curd breakers, price 1*l.* 5s. and upwards; wood drag rakes, price 9s. 6d. each, improved and manufactured by the exhibiters; twitch rakes, price, handled, 3s., invented, improved, and manufactured by the exhibiters; various garden seats, price 16s. and upwards, designed and manufactured by the exhibiters.

Thomas Green, of Smithfield Iron Works, North-street, Leeds, Yorkshire.

Several sizes and specimens of lawn mowing machines, price £6 10s. to £18, invented, improved, and manufactured by the exhibiter.

William Harkes, of Lostock Gralam, near Knutsford, Cheshire.

(New implement) a patent plough and pulverizer, price £8; (new implement) a turnwrest plough, with patent pulverizer, price £14; (new implement) a one-horse plough, with patent pulverizer, price £5 10s.; a drill plough, price £3 5s., and a scarifier or horse-hoe, price £4, all invented and manufactured by the exhibiter.

William Harwood, of Mendlesham, near Stonham, Suffolk.

A reaping and mowing machine, price £42, and a mowing machine, price £30, both invented, improved, and manufactured by the exhibiter.

George Howe, of Farningham and Dartford, Kent.

A Dray and Co.'s patent champion reaping machine, price £25, invented by Obed Hussey, of America, improved and manufactured by the exhibiter (awarded prizes by the leading agricultural societies of England, Ireland, Scotland, and on the Continent); a Royal Society of England prize chaff-cutting machine, price £7, and a corn-crusher, price £6 10s., invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester; a patent bean-cutter, on an iron stand, price £4, invented and improved by G. A. Biddell, of Ipswich, and manufactured by Ransomes and Sims, of Ipswich, Suffolk; a Royal Agricultural Society of England prize oilcake breaker, price £5 5s., and an improved oilcake breaker, price £3 13s. 6d., both invented, improved, and manufactured by E. H. Bentall, of Heybridge, Essex; a Royal Agricultural Society of England prize root-cutter, price £5 10s., invented by James Gardner, of Banbury, improved and manufactured by B. Samuelson, of Banbury; a patent prize root-pulper, price £6 6s., invented, improved, and manufactured by E. H. Bentall, of Heybridge, Essex; a 4-cwt weighing machine, price £3 18s., improved and manufactured by W. and T. Avery, of Birmingham; a patent sack holder, price £1 3s., invented by H. Gilbert, of London, improved and manufactured by Richmond and Chandler, of Salford, Manchester; a very economical chaff-cutting machine, price £3 15s., invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester; improved leather driving bands for machinery, price 8d. to 4s. 1d. per foot, manufactured by the exhibiter.

Thomas Johnson and Son, of Leicester.

A 3-cwt. weighing machine, price £2 5s., invented and manufactured by Day and Millward, of Birmingham; a 3-cwt. platform weighing machine, on wheels, price £3 15s., and a 4-cwt. platform weighing machine, price £4 5s., both improved and manufactured by Day and Millward, of Birmingham; a 3-cwt. sack weighing machine, price £2 2s., and a 3-cwt. portable platform weighing machine, price £3 5s., both improved and manufactured by W. and T. Avery, of Birmingham; a mangle, price £10, improved and manufactured by the exhibiters; a 19-inch patent mowing machine, price £6 10s., improved and manufactured by Picksley, Sims, and Co., of Leigh; a 20-inch patent lawn mowing machine, price £7 10s., other sizes higher, improved and manufactured by Thos. Green, of Leeds: a Whitechapel or sporting dog-cart, price £36, and a Leicester basket cart, price £23, both improved and manufactured by Parr and Hamshaw, of Leicester; several sizes and patterns of garden chairs and seats, price 15s. upwards, manufactured by the Coalbrookdale Company and the exhibiters, cast-iron vases, pedestals, &c., of various sizes, price £2 2s. upwards, manufactured by the Coalbrookdale Company, and Handyside and Co., of Derby; a cast-iron fountain, price £14 10s., manufactured by Handyside and Co., of Derby; bronzed flower-pot stands, price £2 to £12; a bronzed cast-iron hat and umbrella stand, price £8, all manufactured by the Coalbrookdale Company; a cast-iron hat and umbrella stand, with hall table combined, price £8, manufactured by Corbitt and Co., of Rotherham; an ornamental cast-iron hat and umbrella stand, price £3, and a cast-iron table, price £1 12s. 6d., both manufactured by the exhibiters; a cast-iron hall table, price £4 15s., manufactured by Corbitt and Co., of Rotherham; an ornamental cast-iron chimney-piece, price £5 10s.; a register stove, price £4 10s., and a cast-iron hearth place and bright ash pan, price £3 17s. 6d.; various sizes and patterns of iron wire garden chairs, price 8s. 6d. upwards; ditto stools, price 5s. 6d.; iron wire flower stands, price 14s. upwards; wire flower-pot stands (single), japanned, price 5s. 6d. upwards; a set of three Exhibition suspending flower baskets, price 14s. per set; a set of wire gauze dish covers, various sizes, price 1s. 3d. to 5s. 6d, or £1 5s. per set; a galvanized iron wire rat trap, price 4s. 6d.; a roll of galvanized iron wire game netting, price 6d. to 7d. per running yard, all manufactured by the exhibiters; a large-sized newly-designed parrot cage, price £8 12s. 6d., manufactured by Baker and Co., of Birmingham; wire bird cages, price 16s. 6d. upwards, and a galvanized meat safe, two sizes, price £1 1s. to £1 6s. each, manufactured by the exhibiters.

George Joseph Johnston, of Ashley, near Newmarket, Cambridgeshire.

(New implement) a registered rotary coulter or cutter for corn and seed drills, price of fittings altogether £30, invented and manufactured by the exhibiter.

Arthur Lyon, of 32, Windmill-street, Finsbury, London.

(New implement) a machine for pulping raw roots, invented and manufactured by the exhibiter, price £6 10s.; a machine for pulping steamed roots, for feeding pigs, &c., price £7; a machine for pulping steamed or raw roots, price £5 and £7 10s.; a machine for cutting carrots, &c., for horses, and mixing food for hounds, price £6 10s.; various sizes of a machine for cutting meat and making sausages, price £2 to £6 6s.; a machine for mincing meat, fish, and vegetables, also making sausages, price £1 10s.; a machine for the dinner table, to assist digestion, price £1 5s. to £2 2s.; a machine for making sausages, &c., price £1 10s.; a knife and board for chopping suet, parsley, &c., price 4s. 6d; similar to the preceding, price 3s. 6d.; a tobacco cutting knife, price 2s. 6d.; a knife for slicing cucumbers and potatoes, price 1s; and a machine for pulping roots, &c., for feeding poultry, price £2 5s., invented, improved, and manufactured by the exhibiter; a machine for paring, coring, and slicing apples, invented, improved, and manufactured by Timmins's, of Birmingham, price 8s. 6d.; a gardener's roll, containing pruning knives, invented, improved, and manufactured by Rogers, of Sheffield, price 7s. 6d.

Oliver Maggs, of Bourton (Dorset), near Wincanton, Somerset.

An improved 4 horse power portable steam engine, price £145; a patent combined bolting thrashing machine, price £65; a 2½ horse power portable steam engine, price £70; a small combined thrashing and riddling machine, price £35; and an improved chaff cutter, with 3 knives and sifting apparatus, for steam or other power, price £16 10s., invented, improved, and manufactured by the exhibiter; a patent cheese press, invented and manufactured by the exhibiter, price £2 12s. 6d.; an improved screw and lever cheese press, invented, improved, and manufactured by the exhibiter, price £2 12s. 6d.; an improved solid beam iron plough, price £4 7s. 6d., two wheels 10s. extra; and an improved solid beam iron plough, price £4 7s. 6d., improved and manufactured by the exhibiter; (new implement) a set of patent self expanding chain harrows, invented and manufactured by the exhibiter, price £3; an improved clod crusher or wheel roller, invented, improved, and manufactured by the exhibiter, price £14; a pair of improved door scrapers, invented by C. F. C. Foxon, of Bourton, improved and manufactured by the exhibiter, price 3s. and 5s.; an improved patent rotary washing machine, price £4 4s.; and an improved patent washing machine, price £3 10s., invented, improved, and manufactured by the exhibiter; a patent atmospheric house bell, invented, improved, and manufactured by J. J. Willnay, of Bristol, price 10s. 6d.

Charles Peters Moody, of Corton Denham (near Sherborne, Dorset), Somersetshire.

(New implement) a patent straw fabricating machine, invented, improved, and manufactured by the exhibiter, price £25.

Oldham and Booth, of Kingston-upon-Hull, Yorkshire.

(New implement) a six horse power combined bone mill and bone dust mill, invented and manufactured by the exhibiters, price £220; and (new implement) a 4 horse power bone dust mill, price £90, invented, improved, and manufactured by the exhibiters.

Hill and Smith, of Brierley Hill Iron Works, near Dudley.

(New implement) a set of Smith's patent harrows, invented by H. Smith, and manufactured by the exhibiters, price £3 to £5; a set of patent self relieving chain harrows, invented by Jno. Cartwright, of Shrewsbury, and manufactured by the exhibiters, price £3 10s. to £4 15s.; a wrought-iron stubble paring skim, or light scarifier (obtained a prize from the Royal Agricultural Society at the Derby meeting), price £5 and £6; a strong wrought iron broadshare, price £3 10s.; (new implement) a strong wrought iron cultivator, or broadshare, price £12 10s.; a wrought iron horse hoe (has obtained the silver medal of the Royal Agricultural Society), price £3 3s.; a premium wrought iron light land roller, in two parts (obtained the prize as a light land roller at the Chelmsford meeting of the Royal Agricultural Society), price £10 10s.; a wrought iron barley roller, price £8; (new implement) a wrought iron universal field roller, large size, in two parts, price £15; and a cast iron land roller, price £14, invented and manufactured by the exhibiters; a cast iron clod crusher, or roller, invented by Wm. Cambridge, of Bristol, and manufactured by the exhibiters (obtained the prize as a clod crusher at the Chelmsford meeting of the Royal Agricultural Society), price £6 13s. to £13 15s.; a chaff cutting machine, invented and manufactured by the exhibiters, price £12; a chaff cutting machine, invented by Cornes, of Barbridge, improved and manufactured by the exhibiters (has on repeated occasions obtained the Royal Agricultural Society's prize), price £13; a chaff cutting machine, for hand power, price £6 10s.; and a chaff cutting machine, price 50s., invented and manufacturedby the exhibiters; a machine for crushing oats or beans, price £5 5s.; a machine for breaking oilcake, invented and manufactured by the exhibiters, price 65s.; a turnip cutting machine, invented by Gardner, of Banbury, improved and manufactured by the exhibiters, price £5 10s., smaller 90s.; a turnip grating or pulping machine, invented by Moody, and improved and manufactured by the exhibiters, price 90s.; a horse works, price £12 12s.; a granary or warehouse crane (obtained a prize from the Society), price £7 10s. and £10 10s.; a rotary gravel screen, price £6 16s. and £8; an iron portable forge, price £5 5s.; an iron portable smith's work bench, with vice attached, price 40s.; an iron lifting jack, for carriages, carts, &c., price 20s.; and an iron sack barrow or truck, price 15s. invented and manufactured by the exhibiters; a patent sack holder and sack barrow combined, invented by Henry Gilbert, of London, improved by Henry Cooch, of Harleston, and manufactured by the exhibiters, price 32s.; a set of iron arms and boxes for carts and waggons (of different sizes), manufactured by the exhibiters, price 30s. per cwt.; an iron heating barrow, for tar, &c., price 63s.; an iron wheelbarrow, for general purposes, price 27s. 6d.; an iron wheelbarrow, for stables or ashes, price 35s.; an iron swing barrow, price 40s.; an iron sheep rack, price 84s. and £6 6s., invented and manufactured by the exhibiters (obtained the silver medal of the Society); a wrought iron sheep folding hurdle, invented by Henry Gilbert, of London, and manufactured by the exhibiters, price 16s. each; a wrought iron sheep folding hurdle, invented and manufactured by the exhibiters, price 17s.; a wrought iron sheep hurdle, price 5s.; a wrought iron sheep trough (obtained the silver medal of the Society at the Salisbury show), price 30s.; and a wrought iron galvanized sheep trough, price 35s., invented and manufactured by the exhibiters; a set of improved pig troughs, manufactured by the exhibiters, price from 9s. 6d. to 21s. each; a registered pig trough, invented by David Prosser, of Harescomb, and manufactured by the exhibiters, price 30s.; a set of cattle drinking troughs, price from 12s. to 65s. each; an iron water tank, price 75s.; a wrought iron rack feeding hurdle with trough, price 35s.; and a wrought iron cattle crib, 67s. 6d., invented and manufactured by the exhibiters; a machine for salting gravel walks and carriage drives, invented by Fleming, of Trentham Gardens, and manufactured by the exhibiters, price £13 10s.; a Shank's patent hand mowing and rolling machine, invented by Shank's and Son, of Arbroath, and manufactured by the exhibiters, price from £5 15s. to £7 17s. 6d.; a specimen of patent black varnish, invented and manufactured by the exhibiters, price 1s. 6d. per gallon; light japanned game proof wire netting, price 6d. to 1s. 6d. per lineal yard; light galvanized game proof wire netting, price 9d. to 1s. 4½d. per lineal yard; extra strong galvanized game proof wire netting, price 1s. 10d. to

2s. 3d. per lineal yard ; game proof plant guards, price per dozen 18s. to 58s ; wrought iron tree guards, price 12s. to 24s. each ; wrought iron ornamental garden seats, price 22s. 6d. to 50s. ; a pair of folding garden or camp stools, price 4s. 6d. ; a wrought iron field gate and wrought iron posts with basements (received the silver medal of the Society, the first prize of the Royal Agricultural Society of Ireland, and nine other premiums from different provincial societies), price 50s. ; other sizes and specimens at various prices ; continuous sheep or light cattle fence (obtained the silver medal of this Society on two occasions), price 2s. 1d. to 4s. 6d. per yard according to the strength ; invisible strained wire deer park fence, invented and manufactured by the exhibiters, price without vertical rods 1s. 11d., with rods 7s. per yard and upwards ; a set of tools for erecting strained wire fences, complete with box, price 42s. ; wrought iron hurdles, price 3s. 10d. to 6s. 10d. ; strong wrought iron unclimbable railing, price 18s. per yard ; a wrought iron footpath or turnstile gate and post, price 35s. to 45s. ; a wrought iron hand gate and posts, price 55s. to £6 6s., invented and manufactured by the exhibiters ; a patent field stile, invented by Thomas Lyne, of Malmesbury, price 40s. ; an improved iron garden roller, with balanced handle, price 65s. ; a set of wrought iron ornamental garden stakes, price 3s. 6d. to 30s. per dozen ; wrought iron standards or stakes for wire netting, price 4s. 6d. to 8s. 6d. per dozen ; an iron vermin proof rick stand, price from 80s. to £19 10s. ; a pair of cast iron vermin proof rick stand pillars and caps for wood frame top, price large size 4s. 8d., small size 3s. 6d. each ; iron poultry hurdles price 5s. 2d. each hurdle, or 31s. for the pen complete ; a stall division, price deal 4s. 10d., oak 6s. ; a stall division, price without wood work 32s. 6d., with 1½ inch deal pannelling 72s. 6d., with 1½ inch oak pannelling 82s. 6d. ; a galvanized corner manger, in loose box, price 9s. and upward ; a corner rack, price plain 8s. 6d , galvanized 11s. 6d. ; a rack and manger, price plain either right or left hand 30s. ; a ventilator and air brick, price 12s. 6d. ; a drain and trap for stalls, price 14s. 6d. complete ; a cast iron horse pot, price 5s. and upwards ; a lining of cast iron enamelled plates, price 3s. 6d. per superficial foot ; a set of harness room fittings, prices various ; and a set of chains for stable use, invented and manufactured by the exhibiters, price halter chain 1s. 3d., pillar do. 1s. 6d., rack do. 10d.

Edward Page and Co., of Victoria Iron Works, Bedford.

Three sizes of a draining pipe and tile machine, price £13 13s. to £17 17s., invented by W. Williams, of Bedford, improved and manufactured by the exhibiters, awarded the prize of £25 at the Royal Agricultural Society's Meeting at Northampton, in 1847 ; an improved double box draining pipe and tile machine, price £36, invented, improved, and manufactured by the exhibiters; several sizes of "eclipse" plough, price £2 15s. to £5, invented and manufactured by the exhibiters ; a bouting or moulding plough, fitted with marker, price £3 17s. 6d , manufactured by the exhibiters ; a combined horse hoe moulding plough and scarifier, price £4 10s., improved and manufactured by the exhibiters ; a one-row horse hoe, price, fitted with wheel, £2 ; and a two-wheel horse hoe, price £2 10s., manufactured by the exhibiters ; an improved leverage horse rake, price £7 10s., invented by W. Williams, of Bedford, improved and manufactured by the exhibiters, was awarded a prize at the meeting of the Royal Agricultural Society, held at Southampton in 1844, at Norwich in 1846, and at Dublin in 1851, and highly commended at Salisbury in 1857 ; (new implement) a new patent leverage horse rake, price £7 10s., invented and manufactured by the exhibiters ; several sizes of a four-wheel wrought lever scuffler or scarifier, price £5 to £8, improved and manufactured by the exhibiters ; several sets of four-beam patent diagonal iron harrows, price £2 5s. to £5 10s., invented by S. L. Taylor, of Cotton End, and manufactured by the exhibiters, obtained a prize at the meeting of the Royal Agricultural Society at Derby 1843, at Southampton 1844, at Shrewsbury 1845, at Northampton 1847, at Norwich 1849, at Exeter 1850, prize medal at the Great Exhibition of 1851, at Lewes 1852, at Gloucester 1853, at the Irish Exhibition, Dublin, 1853, also the first prizes for both light and heavy harrows at the Bath and West of England Show, 1854 ; a pair of patent drag harrows, price £6, manufactured by the exhibiters ; (new implement) a set of Emery's patent cross-parallel iron harrows, price £5, invented by R. Emery, of London, and manufactured by the exhibiters ; several chaff machines, price £2 15s. to £14 14s., improved and manufactured by the exhibiters ; (new implement) a patent linseedcake machine, price £3 10s. ; and a pug mill for grinding clay, price £12 12s., invented and manufactured by the exhibiters ; a set of whippletrees, price 11s. 6d ; a set of equalizing whippletrees, price £1 6s. ; and a basket of dies, manufactured by the exhibiters.

Thomas Standing, of Preston, Lancashire.

(New implement) an improved patent sun-and-planet motion agitator, for 120 gallons, price £15 10s. ; an improved prize patent sun-and-planet motion churn, price from £1 13s. to £6 6s. 6d. ; a barrel churn, price £2 11s. improved and manufactured by Robinson, of Coventry ; strong double-selvage small diamond mesh hare and rabbit proof galvanized wire netting, and other netting for sheep, &c , price from 2¼d. to 1s. 2½d. per lineal yard ; and small diamond mesh extra strong garden fencing, to supersede iron railings, price 1s. 6¾d. per lineal yard ; extra strong double-selvage galvanized wire sheep fencing, price 1s. 1d. per lineal yard, and extra strong double selvage galvanized house, garden, wall, flower, fruit, and vine training fencing, price 1s. 4½d. per lineal yard, invented, improved and manufactured by the exhibiter.

Tuxford and Sons, of Boston and Skirbeck Iron Works, near Boston, Lincolnshire.

A twelve-horse power patent portable steam engine, with two vertical cylinders within a steam jacket, and fitted with separate expansive valves, and an iron house enclosing the working parts of engine, under lock and key, price £350, took the Royal Agricultural Society's first prize at Chester in 1858, and also the first prize at their previous meeting at Carlisle ; an eight-horse power patent portable steam engine, with vertical cylinder, in an iron house enclosing the working parts of the engine, under lock and key, and a safety spark trap to the chimney, £235 ; a seven-horse power ditto, price £220 ; a seven-horse power patent portable steam engine, with inverted cylinder, within a steam jacket, and an iron house enclosing the working parts of the engine, under lock and key, price, on travelling wheels, £235 ; a seven-horse power improved portable steam engine, with horizontal cylinder enclosed within a steam jacket, and fitted with a separate expansive valve, and with a tubular boiler, price £225 ; a six-horse power ditto, price £205 ; a five-horse power ditto, price £185 ; a four horse power ditto, price £170—all on iron wheels, if on wood £5 extra ; a three-horse power ditto, price, on wheels £130, without wheels £110, without wheels and governors, and unfelted, £100 ; a two-horse power ditto, price, on wheels £100, without wheels £85, without wheels and governors, and unfelted, £75 ; a one-horse power ditto, price, on wheels £65, without wheels £50, without wheels and governors, and unfelted, £45 ; an eight-horse power fixed steam engine, with vertical cylinder, upon a cast iron sole plate, with handsome Doric frame, price £200 ; a six-horse power ditto, price £160 ; a patent combined thrashing, straw shaking, riddling, winnowing, chaff separating, and barley awning machine, with elevators to sack the grain at a height convenient for a man to back without help, price £90 (the judges of the Royal Agricultural Society have pronounced Tuxford's patent straw shaker and barley awning apparatus perfect) ; a patent combined thrashing, shaking, and dressing machine, with an extra dressing apparatus for finishing in one operation for market, price, with Boby's patent screen £117 10s., without it £110 ; a portable grinding mill, with a pair of 3 feet French stones, for steam power, fitted with silent feed and regulating apparatus, and arranged for either a flour mill or a farmstead, price £55 ; an improved circular-saw table, with cast-iron framing, parallel fence plate, and binding roller or mechanical hand, rails and horses, drag motion and driving pulley, arranged for carrying saws up to 42 inches diameter, and adapted for round or square timber, deals, &c., price, with a 30-inch saw, £42 ; and an improved circular-saw table, with cast-iron framing, parallel fence plate, driving pulley, and a planed top, price, with a 24-inch saw, £14 (all the before-mentioned are invented by Weston Tuxford, of Boston, and manufactured by the exhibiters).

W. S. Underhill, of Newport, Salop.

A plough, price £3 10s.; a plough, price £4 5s.; and a ridging plough, price £3, improved and manufactured by the exhibiter; a set of zig-zag harrows, price £2 15s.; and a set of harrows, price £3 10s., invented by Mr. Armstrong, and manufactured by the exhibiter; a chain harrow, price £2 10s., stronger £3 10s., manufactured by the exhibiter; a seven-tine or three-horse cultivator, price £6; and a nine-tine or four-horse cultivator, price £7 10s., invented, improved, and manufactured by the exhibiter; a grubber, price £2 5s., and a horse-hoe, price £1 10s., improved and manufactured by the exhibiter; a chain roller or clod-crusher, price £18, invented, improved, and manufactured by the exhibiter; a rye-grass drill, price £3 10s., a gapping drill, price 8s. 6d.; a haymaker, price £14 14s.; a lever horse-rake, price £6; a sheep rcak, price £3 10s., and a cow crib, price £1 10s., improved and manufactured by the exhibiter; an assortment of iron hurdles, price 4s. 4d. to 5s. 6d.; a disconnecting apparatus, price £2 10s., invented, improved, and manufactured by the exhibiter; a self-acting index cheese press, price £3 10s. (awarded a first prize at the N. S. Agricultural Society's Show at Lichfield, Sept. 22, 1858), invented and manufactured by Henry Buckshaw, of Hinstock, Market Drayton, Salop.

John Wheat, of Hinckley, Leicestershire.

(New implement) a new gearing and improved steerage, applicable to drills in general, price £10 10s., the gearing invented, and the steerage improved and manufactured by the exhibiter.

Thomas Wheeler & Co., of The Albion Works, New Road, Oxford.

(New implements) three patent Oxonian oscillating knuckle domestic washing machines, price £1 15s. and upwards; (new implements) two patent Oxonian oscillating knuckle flax, wool, root, or clothes washing machines, price £2 12s. and £4; (new implements) two patent Oxonian reciprocating washing machines, price £4 10s. and £5 15s.; (new implement) a patent rotary diagonal Oxonian knuckle washing machine, price 6*l.* 6s. and 8*l.* 8s.; (new implement) a patent Oxonian sheep-washing machine, price 3*l.* 10s.; a patent Oxonian combined washing, wringing, and mangling machine, price 8*l.* 8s.; a portable mangle, price £2 15s.; an imperial mangle, price 4*l.* 2s.; and (new implement) a portable furnace, price 3*l.* 3s., all invented and improved by Thomas Wheeler, and manufactured by the exhibiters; a patent domestic sewing machine, price 3*l.* 3s. and 6*l* 6s., invented, improved, and manufactured by Hewett, Allott, and Walker, of Sheffield; a patent double and single thread sewing machine, price 15*l.*, invented, improved, and manufactured by William Ridley, of Fleet-street, London; a patent root pulper, price £5 10s.; two patent root graters, price £5 5s. each; a circular saw bench, price £16 10s. (the prize of £1 was awarded to this implement at the Oxford show); a bean mill, price £2 15s.; a millstone prover and case, price £2 15s.; a set of six cast-steel mill-bills, price 1s. per lb., and a set of six silver-steel mill bills, price 1s. 1d. per lb., all invented and improved Thomas Wheeler, and manufactured by the exhibiters; a three-and-half horse power portable steam engine, price £120, invented, improved, and manufactured by Hart, Gibbons, and Co., of Wantage, Berkshire.

James Woods & Sons, of The Suffolk Iron Works, Stowmarket, Suffolk.

A portable corn grinding mill, price £49, and a smaller size £31 10s.; an improved grinding and crushing roller mill, price £13 13s.; a roller crushing mill, price £11 11s., and a smaller £7 15s.; a universal mill for crushing oats, malt, linseed, barley, &c., also to grind beans, peas, &c., price £10 10s., a smaller size £5 15s.; and an improved crushing roller mill, price £4 10s., all invented, improved, and manufactured by the exhibiters; (new implement) six improved pulpers or root mincers, price £4 15s. to £5 10s., invented by Frederick Phillips, of Brandon, improved and manufactured by the exhibiters; a two-horse portable thrashing machine, price £37; a three-horse power ditto, price £49; a one-horse power for driving chaff engines, crushing mills, root pulpers, &c., price £13 13s., invented improved, and manufactured by the exhibiters; a Phillips's patent poppy and weed extirpator and fertilizing lever harrow, price £9 9s. (was awarded the silver medal by the Royal Agricultural Society of England at Chelmsford), invented by Frederick Phillips, of Brandon, and improved and manufactured by the exhibiters; a set of rake teeth (Howard's patent), price £3 3s., invented by J. and F. Howard, of Bedford, and improved and manufactured by the exhibiters; a patent horse rake, price £8 10s., invented, improved, and manufactured by J. and F. Howard, of Bedford; an improved one-horse cart, with harvest frame, price £15 10s. (was awarded first prize at the Salisbury Meeting, 1857—(last offered); three improved one-horse carts, price £13 10s. to £15; and a pair of wheels and axle, price £7 15s. to £9, invented, improved, and manufactured by the exhibiters; a Halls' patent cabinet mangle, price 6*l.* 10s., invented by John Halls, Bildestone, and improved and manufactured by the exhibiters; an asphalting apparatus for laying asphalte floors, paths, &c., price 17*l.*; specimens of asphalte flooring; a double barley roll, price 8*l.* 8s.; an iron furrow roll, price 2*l.* 2s., and an iron furrow roll, price 2*l.* 10s.; invented, improved, and manufactured by the exhibiters; a wrought-iron barley roll, price 10*l.* 10s., improved and manufactured by the exhibiters; a Wood's iron land and pasture roller, price 7*l.* to 15*l.* 10s.; a press-wheel furrow roll, price 8*l.*; a Wood's double iron hand and pasture roller, price 15*l.*; two combined Cambridge's and Crosskill's rollers and clodcrushers, price 11*l.* 11s. and 14*l.* 14s. each; a three-horse improved portable steam engine, price 95*l.*, invented, improved, and manufactured by the exhibiters.

John Allin Williams, of Baydon, near Hungerford, Wilts.

(New implement) a three-furrow one-way plough for steam cultivation, price £50, and (new implement) a seven-share steam cultivator, price £35, invented and manufactured by the exhibiter.

Joseph Bettridge, of Wellesbourne, Hastings, near Warwick.

A Whitechapel cart, price £35, and a fashionable Malvern dog cart, price £30, invented, improved, and manufactured by the exhibiter.

Lord Willoughby de Broke, of Compton Verney, Warwick.

Three sizes of a farm gate, price 17s. 6d., 19s. 6d., and £1 4s.; and a set of draining pipes, price, 6 draining pipes of 2-inch bore £1 2s., 6 ditto of 4-inch bore £2 2s., 6 ditto of 6-inch bore £8 6s. 8d. per thousand; all manufactured by the exhibiter.

William Ball, of Rothwell, Northamptonshire.

An iron plough for general purposes, price 4*l.* 8s. (the only plough which has gained a first-class prize medal at each of the three great national exhibitions, viz., England, Irelnd, and France, also a prize of 5*l.* at the Royal Agricultural Society's meeting at Norwich 1849, 7*l.* at Exeter 1850, commended at Lincoln 1854, and Carlisle 1855, a first-class prize medal at Melbourne, Australia, 1856, and a prize of 4*l.* at Chelmsford the same year); an iron plough for very deep ploughing, price 5*l.* 10s. (a prize of 7*l.* was awarded at the Royal Agricultural Society's meeting at Gloucester 1853, commended at Carlisle 1855, and a prize of 3*l.* at Chelmsford 1856); an iron plough for light land, price 4*l.* 8s. (a prize of 2*l.* was awarded by the Royal Agricultural Society's meeting at Chelmsford 1856, and local prizes); a ridge or double-breast plough, price 4*l.* 4s.; an iron plough, price 4*l.* 8s.; a light two-horse waggon, price 30*l.* (a first-class prize was awarded at the Royal Agricultural Society's meeting at Lewes 1852, and a first-class prize medal at the Paris Exhibition 1855); a three-horse waggon, price 30*l.*; a cart for one horse, price 14*l.* 10s. (a first-class prize was awarded at the Royal Agricultural Society's meeting at Salisbury 1857); a cart for one or two horses, price 15*l.*; an iron scarifier, cultivator, and grubber, price 6*l.* 6s., and an iron scarifier, price 7*l.* 7s., all invented, improved, and manufactured by the exhibiter; a set of strong general purpose iron harrows, prices from 3*l.* 5s. to 4*l.* 4s., invented by Samuel Taylor, of Cotton End, and manufactured by the exhibiter; an iron horse hoe, price 2*l.* 10s. to 4*l.*; and a set of whippletrees, invented by the exhibiter, price 10s.

Barnard, Bishop, and Barnards, of Norwich, Norfolk.

A patent root pulper, price 4*l.* 10s. and upwards, invented and manufactured by the exhibiters; a root grater, or turnip cutter, price 4l. 10s., improved and manufactured by the exhibiters; a root grater, price 3l. 10s., invented by Bushe and Barter, of Lismore, Ireland, improved and manufactured by the exhibiters; an improved turnip slicer, price 4l., invented and manufactured by the exhibiters; a Gardner's turnip cutter for sheep, price 4l. 10s. and upwards, invented by James Gardner, of Banbury, improved and manufactured by the exhibiters; a patent barley hummeller or aveller, price 5l. 10s., invented by R. R. Holben, of Barton, Cambridge, improved and manufactured by the exhibiters; a patent rotary corn screen and riddle, for farmers' use, price 8l. 8s., invented by John Palmer, of Stockton-on-Tees, improved and manufactured by the exhibiters; a wrought-iron hay-rack or crib, for cattle or horses, price 1l. 10s., improved and manufactured by the exhibiters; registered troughs and fountains for poultry or dogs, at various prices from 1s. 9d. to 10s. each; strong wrought-iron garden chairs, price 18s. 6d. and upwards; and a wrought-iron table for garden or camp, price 1l. 4s., invented and manufactured by the exhibiters; a patent self-rolling mangle, price 7l. 7s., invented by Charles Barnard, of Norwich, and manufactured by the exhibiters; a cottage mangle, price 3l. 10s.; galvanized wire netting, at from 4½d. per yard and upwards; pig troughs of all sizes and descriptions, from 7s. each and upwards; a cast-iron window casement, price 18s., invented and manufactured by the exhibiters; and two cast-iron cocks, for water-carts or buts, improved and manufactured by the exhibiters, prices 5s. 6d. and 7s.

Thomas Bradford, of Manchester, Lancashire.

Bradford's patent washing machine, price 3l. 10s. and upwards; Bradford's patent washing machine, with wringing and mangling combined, price 8l. 8s. and upwards; Bradford's patent complete washing apparatus, price from 21l. to 52l. 10s. per set; Bradford's improved wringing machine, price 4l. 4s., invented, improved, and manufactured by the exhibiter; Bradford's improved mangle, with lignum vitæ roller-price 5l. 5s., invented, improved, and manufactured by the, exhibiter; Bradford's registered churn, with compensated dash (new implement), invented and manufactured by the exhibiter, price 2l. 15s., to churn 20 gallons 5l. 15s.; and an improved portable boiler,with copper pan, price 4l. 4s., improved and manufactured by the exhibiter.

The Busby Agricultural Implement Company, of Newton-le-Willows, near Bedale, Yorkshire.

A two-wheeled plough for deep ploughing, price 5l. 10s. (received the prize at the Society's meeting at Northampton in 1847, 10l. at York 1848, and 7l. at Lewes 1852); a two-wheeled plough for general purposes, price from 3l. 17s. 6d. to 4l. 10s. (received the award of the council medal at the Great Exhibition of 1851, a first-class medal at the Paris Exhibition, also six head prizes from the Royal Agricultural Society of England in eight years, also 10l. at the Rotherham meeting of 1856); a light two-horse plough, price 3l.; a double-breast or ridging plough, price 4l. 7s. 6d.; and a dwarf plough in iron, price 2l. 5s.; all invented and improved by W. Busby, of Newton-le-Willows, and manufactured by the exhibiters; a skeleton plough, price 4l. 10s., invented by the Rev. W. F. Wharton, of Birmingham, improved by W. Busby, and manufactured by the exhibiters; a Northumberland harrow, price 4l. 7s. 6d., invented and improved by W. Busby, manufactured by the exhibiters; a patent self-relieving chain harrow, price 5l. 5s. and 6l. 6s.; two sets of seed harrows, price 3l. 3s. and 4l.; horse hoe, with three tines, price 2l.; a horse hoe with three tines and revolving harrow, price 2l. 5s. (received prizes five years in succession from the Royal Agricultural Society, also prizes at the Bath and West of England Society, at Taunton in 1852, at Plymouth 1853, at Bath 1854, at Tiverton in 1855, and at Salisbury in 1857, for both flat and ridge work); and a five-tined grubber, or horse hoe, price 3l. 3s., invented and improved by W. Busby, and manufactured by the exhibiters; a patent implement for topping and tailing turnips, price 6l. 15s.; and a one-horse cart, price 13l., invented by W. Lister, Esq., of Dunsa Bank, improved by W. Busby, and manufactured by the exhibiters (received a prize of 10l. at the Exeter meeting in 1850, a council medal of the Great Exhibition in 1851, a prize of 10l. at Lewes in 1852, silver medal at Lincoln in 1854, and the Bath and West of England Society's prize for three years in succession, and a prize of 4l. at Salisbury in 1857; an improved one-horse cart, price 16l. 10s.; and an improved harvest cart, price 15l. 10s., invented by Hannam, of Burcot, improved by W. Busby, and manufactured by the exhibiters.

J. B. Booth, of Killerby, near Catterick, Yorkshire.

A farm gate, price 1l. 4s., invented, improved, and manufactured by the exhibiter.

Robert Cuthbert and Co., Newton-le-Willows, near Bedale, Yorkshire.

A light reaping machine for one or two horses, price 22l., and a two-horse reaper, price 24l. 10s., invented by Hussey, improved and manufactured by the exhibiters.

Hugh Carson, of Warminster, Wiltshire.

An iron plough for light lands, price 2l. 15s.; an iron plough for general purposes, price 3l., improved and manufactured by the exhibiter; an iron plough with two wheels, price 4l., invented, improved, and manufactured by the exhibiter; an iron plough for deep ploughing, with two wheels, price 3s. 15s.; a seven-share cultivator or scarifier, with side levers, price 11l. 10s., the judges of the society very highly commended this implement at the Chelmsford meeting, 1856; a five-share cultivator or scarifier, price 8l. 10s.; an iron field roller, 20 inches diam., price 11l. 10s.; an iron field roller, 16 inches diam., price 9l.; a registered self-cleaning cross-cut wheel roller and clod-crusher, price from 10l. 10s. to 18l.; a wrought-iron horse-hoe, price 2l. 10s. to 4l.; chaff cutting engines for steam or hand power, price from 4l. to 15l., pulley for power and change wheels extra, all invented, improved, and manufactured by the exhibiter; Moody's patent turnip cutter for hand power, on wood or iron frame, price 4l. 10s., invented by Edmund Moody, late of Maiden Bradley, improved and manufactured by the exhibiter; Carson's improved Moody's patent turnip cutter for hand or steam power, price 5l. 5s.; a single cheese press with double lever, price 2l. 10s. and upwards, received the prize from the Bath and West of England Society at Plymouth 1853, and a double cheese press, price 5l. 10s., invented, improved, and manufactured by the exhibiter.

Colthurst, Symons, and Co., of Bridgwater, Somersetshire.

"Royal Flemish farm" (fac-simile of 30 feet of shedding) covered with patent ridge tiles, price 10s. per square; patent double Roman tiles, price 6l. per 1,000; patent double Roman dun-coloured tiles, price 7l. 10s. per 1,000, and patent ridge tiles, price 4s. per dozen, invented and manufactured by the exhibitors; patent eaves tile, stop-ends, and discharge pipes, price 6d. per tile, invented by William Beadon, of Otterhead, and manufactured by the exhibiters; red and grey building bricks, price 1l. per 1,000, and red and grey front or facing bricks, price, red 1l. 5s., grey 1l. 10s. per 1,000; patent 21-hole bricks, price 1l. 5s. per 1,000, invented by Mr. Beart, and manufactured by the exhibiters; hollow bricks, price 1l. per 1,000, manufactured by the exhibitors; plain red tiles, price 2l. per 1,000, and plain dun-coloured tiles, price 2l. 5s. per 1,000; red garden tiles, price 1l. 15s. per 1,000; dun-coloured garden tiles, 2l. 5s. per 1,000, and glazed black garden border tiles, price 2l. 15s. per 1,000, improved and manufactured by the exhibiters; ridge tiles and hip and valley tiles, price 2s. 6d. per dozen; kiln tiles, price 8s. per dozen, manufactured by the exhibitors; two-inch draining pipes, price 1l. per 1,000, four-inch draining pipes, 2l. 5s. per 1,000, and six-inch draining pipes, price 4l. 10s., improved and manufactured by the exhibiters.

James Cornes, of Barbridge Works, near Nantwich, Cheshire.

Registered chaff-cutting machines, price from 2l. 15s. to 13l, invented by John Cornes, sen., of Barbridge, and improved and manufactured by the exhibiter, gained the first prize given by the Royal Agricultural Society of England for thirteen years in succession; a curd mill, price 2l., and a cheese apparatus, price from 2l. 10s. to 3l. 10s., invented, improved, and manufactured by the exhibiter.

William Crowley and Sons, of Newport Pagnell, Buckinghamshire.

(New implement) a set of Crowley's patent apparatus for cultivating by steam power, price all complete for work 480l.; (new implement) a set of Crowley's patent universal ploughs, to be worked by steam power, price 35l. to 50l.; a water cart or liquid manure cart, price 14*l.*, and a one-horse cart for general purposes, price complete 15*l.* 15s., all invented, improved, and manufactured by the exhibiters, this cart obtained the prize at the Great Exhibition of 1851.

JOSEPH and THOMAS DAVIES, of Meeting-street Works, Wednesbury, Staffordshire.

An eight-horse-power portable steam engine, price 210*l.*; a six-horse-power direct-action steam engine, price 60*l.*, and a four-horse-power direct-action steam engine, price 40*l.*

THOMAS DAVIS, of Guy-street, Warwick.

A mill stone, price 6*l.* 10s. to 14*l.*, improved and manufactuaed by the exhibiter; a pair of mill stones, price 4*l.* 10s. to £11., manufactured by Green and Outram, of Bakewell, Derbyshire; a parcel of mill chisels, price 1s. 3d. per lb.; a parcel of chisel hafts, price 2s. each, improved and manufactured by the exhibiter; a stone staff, price 18s., and a bean mill, price 2*l.* 10s., invented and manufactured by the exhibiter; a sack cart, improved and manufactured by the exhibiter, price 16s.; two curd mills, price 16s. and 18s., and a parcel of screw spanners, prices, large size 10s., small size 9s., improved, and manufactured by the ex- hibiter; a set of skittle bowls, price 5s. 6d., invented and manufactured by the exhibiter; a pair of road wheels, price 4*l.* 10s. and 6*l.*, and a connecting rod, price 2*l.* 10s., improved and manufactured by the exhibiter; a thrashing machine, price 17*l.*, invented and improved by the exhibiter.

JOHN EATON, of Twywell Works, Thrapston, Northamptonshire.

(New implement) a pair of twin harrows, price 10*l.* 10s., invented, improved, and manufactured by the exhibiter; an oak field gate, price 1*l.*, improved and manufactured by the exhibiter; a patent turnip thinner and hoe combined, price 6*l.* and 8*l.* 10s.; a light one-horse cart for farm purposes, price 8*l.*, and a corn winnowing machine and blower combined, price 7*l.* 7s., invented, improved, and manufactured by the exhibiter; a corn winnowing machine, price 8*l.* 8s., invented by the exhibiter; a registered sheep crib, price 1*l.* 2s. 6d.; a lifting jack, price 3*l.*, invented and manufactured by the exhibiter, a card of commendation was awarded this description of jack, by the Society held at Lincoln 1854; a larger size, price 4*l.*; an engine screw jack, price 1*l.* 1s. to 1*l.* 12s. 6d.; a child's perambulator, price 17s. 6d. to 1*l.* 1s., invented and manufactured by the exhibiter.

JOHN EDDY, of Kenford, near Exeter, Devonshire.

A strong iron plough, with two wheels and skim-coulter, price £5 (awarded the prize at the Bath and West of England Society at Plymouth 1853, also at Bath 1854); an iron plough for general purposes, with two wheels, price £4 4s. (received the Bath and West of England Society's prize at Yeovil 1856, and at Newton-Abbott 1857); a light iron plough for general purposes, with two wheels, price £3 13s.; an iron turnwrest or one-way plough, with four wheels and two skim-coulters, price £5 (obtained the Bath and West of England Society's prizes for seven years in succession, viz., at Taunton 1852, Plymouth 1853, Bath 1854, Tiverton 1855, Yeovil 1856, Newton 1857, and at Cardiff 1858); a ridging or double-breast iron plough, with two wheels, price £3 10s.; a subsoil plough or subsoil pulverizer, price £3 15s. (awarded the Bath and West of England Society's prize at Yeovil 1856); a pair of heavy iron harrows for three horses, price £3 15s.; a set of iron harrows, three to the set, price £3 15s.; a set of iron seed harrows, three to the set, price £3 10s.; an iron plough for general purposes, with two wheels, price £3 15s.; an iron plough with two wheels, price £2 6s.; and a light iron one-way or turn-wrest plough, with two wheels, price £4 10s. —all invented, improved, and manufactured by the exhibiter.

JOHN THOMAS EDMONDS, of Great Missenden, near Amersham, Buckinghamshire.

(New implement) a new patent balance universal corn-cleaning, blowing, and sifting machine, price £10 10s., invented, improved, and manufactured by the exhibiter.

JAMES FERRABEE and Co., of Phœnix Iron Works, Stroud, Gloucestershire.

A four-horse power portable tubular boiler, price £85, manufactured by Clayton and Shuttleworth, of Lincoln; a three-horse power vertical steam engine, price £55, invented, improved, and manufactured by the exhibiters; a length of bright wrought-iron shafting, with pulleys and standards, price £13, manufactured by the exhibiters; two improved chaff and litter-cutting machines, price £15 15s. and £16 16s., invented, improved, and manufactured by the exhibiters; a chaff-cutting machine for manual or horse-power, price £6, manufactured by the exhibiters; an improved chaff-cutting machine, price £8, improved and manufactured by the exhibiters; a Ferrabee's patent hay-making machine, price £16 16s., invented by James Ferrabee, of the Phœnix Iron Works, and manufactured by the exhibiters; an improved portable safety two-horse power for driving machinery, price £18, invented by James Ferrabee and Son, of Phœnix Iron Works, manufactured by the exhibiters; patent mowing machines, price £4 10s. to £18, invented by the late E. Budding, of Dursley, improved by James Ferrabee, of Phœnix Iron Works, and manufactured by the exhibiters; a case of O'Neill's patent screw wrenches, price £3 3s., invented by P. B. O'Neill, of London, and manufactured by the exhibiters; a case of Budding's improved screw wrenches, price 5s. to 18s., invented by E. Budding, of Dursley, and manufactured by the exhibiters; a patent sweeping machine, price £5 10s., invented by James Ferrabee, of Phœnix Iron Works, and manufactured by the exhibiters.

JOHN FREER, of Rothley, near Loughbourough, Leicestershire.

(New implement) a three-row planting or dibbling machine, for mangel-wurzel and turnip-seed, price £34, invented and manufactured by the exhibiter.

JOSEPH GILBERT, of Evesham, Worcestershire.

An improved patent portable combined thrashing, shaking, and dressing machine, price £100, invented, improved, and manufactured by the exhibiter; (new implement) a corn-dressing machine, price £12 10s., improved three-row corn drills, price £4 5s. to £5, and a grass and seed distributor, price £3 3s., improved and manufactured by the exhibiter.

WILLIAM GLOVER, of Warwick.

An improved farm cart, price £15, an improved one-horse cart for general purposes, price £13, and an improved economical five-row corn drill, price £8, invented, improved, and manufactured by the exhibiter; an improved three-row corn and seed drill, price £6 6s., improved and manufactured by the exhibiter; a six-row lever corn drill, price £12 12s., and a one-row mangold and turnip drill, price £3 6s., invented, improved, and manufactured by Wm. Goulding and Co. of Leicester; a broadcast sowing machine for clover, grass, or turnip seeds, price £3 8s., manufactured by Barrett, Exall, and Co., of Reading, Berkshire; a new patent iron plough, price £4 15s., and a root-pulper, price £4 10s., invented, improved, and manufactured by Wm. Goulding and Co. of Leicester; a patent chaff machine, price £10 5s., invented and manufactured by Picksley, Sims, and Co., of Leigh, Lancashire; a patent Gardner's double-action turnip cutter, price £5 13s. 6d., invented by the late James Gardner, of Banbury, and manufactured by Bernhard Samuelson, of Banbury (obtained the prize at Norwich 1849, Exeter 1850, Gloucester 1853, Lincoln 1854, Carlisle 1855, and is the same in construction as the one that obtained the prize at the Great Exhibition 1851, and at Lewes 1852); a set of four-beam diagonal iron harrows, price £3 15s., invented by Samuel Taylor, of Cotton End, and manufactured by E. Page and Co. (late Williams), of Bedford (prizes at Derby 1843, Southampton 1844, Shrewsbury 1845, Northampton 1847, Norwich 1849, Exeter 1850, the prize medal at the Great Exhibition 1851, at Lewes 1852, Gloucester 1853, and Chelmsford 1856); a chain harrow, price £3, manufactured by Joseph Edwards, Wolverhampton; a Bradford's patent washing machine with wringing and mangling combined, price £8 8s., invented and manufactured by Thomas Bradford, of Manchester; a patent spring balance washing machine with revolving beaded rubbers, price £1 8s., invented, improved, and manufactured by Peter Gabbitass, of Worksop; a patent bread-making or kneading machine, price £5 5s., invented and manufactured by Charles Quinton, of Cheltenham; a revolving iron pig trough with six partitions, price 18s., manufactured by Picksley, Sims, and Co. of Leigh, Lancashire; cast-steel forks, assorted, marked from 2s. to 6s., and draining tools, spades, &c., prices, draining tools £1

10s. per set, spades from 2s. 6d. to 3s. 6d. each, manufactured by Elijah Jackson, of Birmingham; a bundle of rakes, price, handled, 3s., and some cheaper, invented, improved, and manufactured by Wm. Goulding and Co., of Leicester; a patent chaff machine price £10 10s., invented and manufactured by Joseph Gardner, of Banbury; and a sample of chemical manure, price £5 per ton, manufactured by Southall and Co., of Birmingham.

Greening and Co., of the Victoria Iron and Wire Works, 81, Oxford-street, Manchester.

Patent machine-made iron-wire, horse, cattle, poultry, and sheep fences in great variety, price 1s. per lineal yard, and upwards; galvanized hexagonal pattern wire netting for every purpose, price 1s. per yard and upwards, manufactured by the exhibiters; tree guards, price 10s.; wire plant guards, prices 1s., 1s. 6d., 2s., and 3s. each; wrought-iron farm gates of every size and pattern, price, including fittings for wood or stone posts, £1 1s. and upwards; wrought-iron entrance gates, price £6 10s., with handsome cast-iron pier £8 10s.; wrought-iron sheep hurdles, price, with four horizontal bars, 1s. 11d. per yard; wrought-iron cattle hurdles, price, with four horizontal bars, 2s. 3d. per yard; a strained wire fence, price 1s. 9d. per yard; a fine wrought-iron garden wicket gate, price £1 15s.; and a set of fine wrought-iron gates for entrance, price £6 10s., manufactured by the exhibiters.

William Hensmaf & Son, of Linsdale Works, near Leighton Buzzard, Bedfordshire.

A four horse power portable patent bolting thrashing machine (the prize of 20*l.* was awarded to this machine at Exeter, July, 1850, also a prize medal at the Great Exhibition, 1851), price 68*l.*; a three horse power portable patent thrashing machine, price 45*l.*; a ten row press lever and steerage corn and seed drill, price 27*l.*; a patent eight row steerage corn, turnip, and mangold drill, known as the Woburn Drill (a silver medal was awarded to this drill at the York meeting, 1848, and a prize medal at the Great Exhibition, 1851), price 20*l.*; a patent eight row corn and seed drill, price 21*l.*, a patent six row corn and seed drill, price 19*l.*, a one row drill, price 6*l.*, a patent iron plough with two wheels, price 4*l.* 10s., and an improved iron ridge or bouting plough, price 4*l.* 7s. 6d., invented, improved, and manufactured by the exhibiters; a small hand drill, invented by Mr. G. W. Baker, of Woburn, Bedfordshire, and manufactured by the exhibiters, price 1*l.* 10s.

Howard, Riches, & Watts, of Duke's Palace Iron Works, Norwich, Norfolk.

(New implements) two patent American grist mills (No. 2), invented by Amory Felton, of New York, U. S. America, and manufactured by the exhibiters, price £22 and £31 10s.; (new implement) a patent grain separator, invented by Augustus B. Childs, of Rochester, New York, U.S., improved by A. B. Childs, of 192, Tottenham-court-road, London, and manufactured by the exhibiters, price £18 to £80.

Mapplebeck & Lowe, of Birmingham.

Two winnowing machines, improved and manufactured by the exhibiters, price 7*l.* and 9*l.*; a wrought iron corn bin, manufactured by the exhibiters, price 1*l.* 7s. 6d.; an improved patent clod crusher (received the silver medal of the Royal Agricultural Society at Carlisle in 1855, and the first class award of the same society at Chelmsford in 1856), price with travelling wheels 18*l.* 10s.; a Newcastle prize one horse cart, price 15*l.* 15s., a light Newcastle one horse cart price 14*l.* 10s., and a York prize cart, price 12*l.* 10s., invented and improved by W. Crosskill, and manufactured by his trustees, of Beverley (received the prize at York in 1853); weighing machines, improved and manufactured by W. T. Avery, of Birmingham, price from 1*l.* 7s. 6d. to 25*l.*; chaff cutting machines, invented by John Cornes, sen., and improved and manufactured by James Cornes, of Barbridge (gained the first prize given by the Royal Agricultural Society for thirteen years in succession), price 5*l.* 5s. to 15*l.*; chaff cutting machines, with two knives, invented, improved, and manufactured by Richmond and Chandler, of Salford, price 7*l.* 10s. to 10*l.*; (new implements) chaff cutting machines with two knives, improved and manufactured by the exhibiters, price 7*l.* 10s. to 8*l.* 10s.; a cast iron field roller, price 10*l.*; (new implement) an improved wrought iron field roller, price 9*l.* 10s., improved and manufactured by the exhibiters; a patent seven coulter lever scarifier, invented, improved, and manufactured by J. and F. Howard, of Bedford, price 8*l.* 10s.; a five coulter scarifier, improved and munufactured by S. Hand, of Glinton, price 7*l.* 10s.; a Mercote balance scarifier or tormentor, invented by Luke Pearman, Esq., of Mercote Hall, improved and manufactured by the exhibiters, price 2*l.* 5s.; a patent iron plough, price 4*l.* 7s. 6d., a patent iron ridging plough, price 3*l.* 17s. 6d., and a set of patent jointed harrows, price 4*l.*, invented, improved, and manufactured by J. and F. Howard, of Bedford; a chain harrow, improved and manufactured by the exhibiters, price 3*l.* 10s.; a patent horse rake (marked B), invented, improved, and manufactured by J. and F. Howard, of Bedford, price 8*l.* 10s.; an American iron pointed horse rake, improved and manufactured by the exhibiters, price 1*l.* 8s. and 2*l.*; a patent combined oat and bean mill, price 6*l.*, a patent bean cutter, price 4*l.*, and a patent steel oat mill, price 3*l.* 15s., invented by G. A. Biddell, improved and manufactured by Ransomes and Sims, of Ipswich; an improved corn crusher, improved and manufactured by the exhibiters, price 4*l.* 10s.; an improved corn crusher, invented, improved, and manufactured by Richmond and Chandler, of Salford, price 5*l.* 5s. and 6*l.* 10s.; a domestic flour mill, improved and manufactured by the exhibiters, price 7*l.*; an improved horse gear with intermediate motion, improved and manufactured by Ransomes and Sims, of Ipswich, price 13*l.*; an improved oilcake breaker, improved and manufactured by the exhibiters, price 3*l.* 3s.; a registered double action oilcake breaker for sheep and oxen, invented, improved, and manufactured by Smith and Ashby, of Stamford, price 3*l.* 10s.; a double action oilcake breaker for sheep and oxen, invented, improved and manufactured by the exhibiters, price 4*l.* 10s.; a registered oilcake breaker, invented, improved, and manufactured by Nicholson, of Newark, price 5*l.* 10s.; a patent turnip cutter, invented by the late James Gardner, of Banbury, improved and manufactured by the exhibiters (a silver medal was awarded to the exhibiters for this machine at the Northampton meeting of the society, price 4*l.* and upwards; a patent root pulper, invented and manufactured by E. H. Bentall, of Heybridge, price 5*l.* 5s. and 6*l.* 6s.; a sample of turnip manure, price 8*l.* per ton, a sample of bone superphosphate of lime, price 7*l.* per ton, a sample of mineral superphosphate of lime, price 6*l.* per ton, a sample of soluble phosphate of lime price 9*l.* per ton; a sample of wheat, barley, and oat manure, price 8*l.* per ton, a sample of mangold wurtzel, beetroot, and carrot manure, price 8*l.* per ton, a sample of vetch, bean and pea manure, price 8*l.* per ton, a sample of grass, clover, lucern, sainfoin, and ryegrass manure, price 8*l.* per ton, a sample of prepared bones for grass, dairy, or grazing land, and a sample of potato manure, price 8*l.* per ton, all improved and manufactured by Griffin, Morris, and Griffin, of Wolverhampton; samples of sulphate of ammonia, bones, guano, &c., and samples of sacks, oil sheets, and model rick cover, manufactured by Griffin, Morris, and Griffin, of Wolverhampton; a single-row turnip and mangold wurtzel drill, price 2*l.* 12s. 6d.; a double-row turnip and mangold wurtzel drill, price 4*l.* 10s., and a three-row corn drill, price 4*l.* 10s., improved and manufactured by the exhibiters; (new implement) a steerage horse-hoe, price 7*l.* 10s., invented, improved, and manufactured by S. Hand, of Glinton; an expanding horse-hoe, price 2*l.*, improved and manufactured by the exhibiters (highly commended by the judges at the meeting of the Royal Agricultural Society at Salisbury in 1857); a set of improved trussed whippletrees, price, wood 9s. 6d., iron 10s. 6d. per set, invented by E. W. Harding, of Old Springs, improved and manufactured by the exhibiters; a set of cast-iron stable furniture, price 4*l.*, stall post and rails 1*l.* 17s. 6d., rack and manger 1*l.* 7s. 6d., drain and trap 15s.; harness-room fittings, contains saddle bracket 4s. 6d., harness bracket 18 in. by 18 in. 3s. 6d., ditto 15½ in. by 8½ in. 2s. 9d., ditto 11 in. by 10 in. 1s. 6d., light harness bracket 12 in. by 12 in. 8d., ditto jointed 2s., double stable hook 1s. 2d., single ditto 6d., head for batting into wall 2s., pillar chain black 9d., galvanized 1s., rack-chain black 9d., galvanized 1s. 3d., head stall chain black 1s., galvanized 1s. 3d. each; a rack and manger, price 1*l.* 13s. 6d.; a rack, manger, and water trough, price 2*l.*; a centre manger, price 8s. and 10s. each; a corner manger, price 5s. 6d. and 8s. each; a centre hay rack, price 5s. 6d. and 7s., and a corner hay rack, price 4s. 6d. and 5s. 6d., all manufactured by the exhibiters; an improved hand road-scraping machine, price 3*l.* 10s., manufactured by Bourne and Harris, of Somerset; wrought-iron carriage gates, price 21*l.*, 15*l.* 15s, and 10*l.* 10s.; a pair of secondary entrance gates, price 8*l.* 8s.; field gates all sizes and patterns, price 3*l.* and less; sheep, cattle, and ox hurdles, price from 1s. 10d. to 3s. 6d. per yard; a tubular hurdle on wheels, price 14s., or 3s. 6d. per yard; garden fencing, price from 3s. to 4s. per yard, manufactured by the exhibiters; an improved Leamington kitchen range, price 5*l.* 10s. to 25*l.*; a harness-room grate, price 2*l.* 5s.; a set of cattle troughs, price 22s. 6d. and 27s. 6d., and a set of pig troughs, price 6s. to 15s.; a pair of best warranted extra leathered double nailed smith's bellows, price 3*l.* 3s., and an improved portable forge, price 4*l.* 4s., manufactured by J. Onions, of Birmingham; a best warranted anvil, price 1*l.* 8s. per cwt.; an improved black staple vice, price, small 10s. 6d., large 17s. 6d.; a pair of iron arms and boxes, price, 2 in. and 2½ in. 1*l.* 8s. per cwt.; a mail patent axle, with long bolts, price, 1⅜ in. 27s. 6d., 1½ in. 30s.; best fencing wire, price 13s. per cwt., manufactured by Evers, of Cradley; an instrument for straining wire, price 2*l.* 2s.; a pair of pulley blocks, price, small 7s., large 34s.; an improved lifting jack, price 5*l.* and 10*l*; a wooden wheelbarrow, price 1*l.* 5s.; an iron wheelbarrow, price 1*l.* 6s.; an iron sack cart, price, small 9s. 6d., large 16s. 6d., and a wood-frame sack cart, price, small 12s. 6d., large 15s., ditto for barrels 16s.; a set of imperial iron-bound measures, price 1*l.* 12s. 9d., manufactured by Ranford, of Willow-walk; a rain-water pipe, price, 2 in. 10d., 2½ in. 1s. 1d., 3 in. 1s. 3d., 4 in. 1s. 10d., 4½ in., 2s. 4d. per yard; a half-round gutter, price, 3½ in. 8d., 4 in. 9d., 4½ in. 11d. per yard, and a wrought-iron portable washing furnace, price 3*l.* 10s., manufactured by the exhibiters; a double-action mangle, price 10*l.* 10s.; a cottage mangle, price 3*l.* 10s., and a table mangle, price 2*l.* 12s. 6d., improved and manufactured by the exhibiters; (new implement) a washing, wringing, and mangling machine, price 8*l.* 8s., invented and manufactured by Bradford, of Manchester; a linen press, price 2*l.* 15s., improved and manufactured by the exhibiters; a pair of polished mahogany trays and stands, price, supper tray 37s. 6d., stand 12s. 6d., butlers' tray 18s. 6d., stand 12s. 6d.; a patent Ottoman chair bedstead, price 3*l.* 10s.; a portable iron bedstead, price 10s. 6d.; a single lever cheese press, price 2*l.* 10s.; a single cheese press, price 2*l.* 12s. 6d., and a double cheese press, price 5*l.*, manufactured by the exhibiters; an oak barrel churn, price 2*l.* 17s. 6d. and 3*l.* 5s.; an American churn, price 2*l.* 4s., and an atmospheric churn, price 1*l.* 11s. 6d., manufactured by Samuelson, of Banbury; an improved churning apparatus, price 2*l.* 17s. 6d., and a confectioners' egg whisk, price 1*l.* 10s., invented by Griffiths, and manufactured by G. Kent, of London; a patent sausage-making machine, price 30s., 42s., and 63s., invented and manufactured by S. Nye and Co., of London; a patent rotary knife-cleaning machine, price 3*l.* 3s., invented and manufactured by G. Kent, of London; a patent fire-resisting safe, price 8*l.* to 12*l.*, invented and manufactured by Milner and Sons, of Liverpool; patent draining tools, price 1*l.* 19s. (5*l.* was awarded for these tools at the Northampton meeting of the Royal Agricultural Society in 1847, also at Lewes in 1852); black patent spades (assorted), price 3s. 3d., 3s. 6d., and 3s. 9d.; bright patent spades and patent shovels and digging forks of all descriptions, at all prices from 3s. upwards, invented and manufactured by W. A. Lyndon, of Birmingham; black cast-steel spades (assorted), price 4s., 4s. 3d., and 4s. 6d., invented and manufactured by F. Parkes and Co., of Aston; round-nose gravel or railway shovels, price 1*l.* 4s. per doz.; hand drag rakes, price, best quality 12s. 6d.; a liquid manure or water pump, price 3*l.* 12s.; an improved garden engine in tub, price 5*l.*, and an iron garden roller, price 2*l.* 5s.; a patent lawn-mowing machine, price 7*l.*, improved and manufactured by Ferrabee, of Thrupp Mills; a patent lawn-mowing-machine, price 6*l*, invented, improved, and manufactured by Shanks, of Arbroath; a patent lawn-mowing machine, price 7*l.* 10s., invented, improved, and manufactured by Thos. Green, of Leeds; (new implement) a patent lawn-mowing machine, price 7*l.*, invented, improved, and manufactured by Picksley and Sims, of Leigh; five pairs of cast-iron vases and pedestals, price per pair from 3*l.* 10s. to 11*l.* 10s., manufactured by Handyside, of Britannia Foundry; a new pattern cast-iron vase without pedestal, price 60s.; a pair of new pattern Berlin black Grecian vases, price £6 6s. per pair; a pair of rustic pattern garden-seats, price £2 5s. per pair and upwards; a pair of new rustic pattern hall chairs, price £2 10s. per pair; a set of garden syringes, price 4s., 6s., 8s. 6d., 10s. to 14s.; a bundle of garden rods, price, 3 ft. by ¼ in., 4s. and upwards; a set of bright quoits, price, 4lbs. 4s. and upwards; a pair of pheasant feeders, price 5s. and upwards; a pair of improved spring balances, price, to weigh 200lbs. 4s, and an improved dynamometer or draught gauge, price, in strong oak-case £3, manufactured by the exhibiters; a patent oil-feeder, price 3s., invented by Burdess, improved and manufactured by Symington, of Bowden Steam Mills; a specimen of vermin traps, price 16s. and upwards, manufactured by the exhibiters.

William Henry Nash, of Cubitt Town, Poplar, London.

A patent steam rotary cultivator, price 800*l.*, invented and improved by Robert Romaine, of Canada, and manufactured by the exhibiter.

William Pearson and Co., of Leeds, Yorkshire.

A washing, wringing, and mangling machine, price 9*l.* 9s., another size 6*l.* 6s.; a machine for wringing and mangling only, price 3*l.* 7s. 6d., and under; and a machine for wringing and mangling, price 2*l.* 5s., manufactured by the exhibiters.

John Midworth, of Newark, Nottinghamshire.

A portable steam engine, five-horse power, price 180*l.*, improved and manufactured by J. and W. Midworth, of Newark; a combined thrashing-machine, price 120*l.*, a drum for thrashing machine, price 10*l*, and a steeled shaker crank for thrashing machine, price 7*l.*, improved by John Coulson, of Newark, and manufactured by J. and W. Midworth, of Newark; a stationary or fixed engine, two-and-a-half-horse power, price, with Cornish boiler complete, 65*l.*, an improved root pulper, eleven-and-a-half-inch barrel, price 4*l.* 5s., and an improved root pulper, ten-and-a-half-inch barrel, price 4*l.*, improved and manufactured by J. and W. Midworth, of Newark; a set of eight beater plates for thrashing machine, price 3*l.* 4s., invented by John Coulson, of Newark, and manufactured by J. and W. Midworth, of Newark; a cast-iron field pump, price 1*l.* 10s., a cast-iron pump for cistern, price 1*l.* 4s., a cast-iron skylight or ventilator for granaries, price 14s., a double-action cake breaker, price 3*l*, a cart of beast-shed front in cast-iron, price 11s. per yard, a double-swing window, price 14s., a window, with slide ventilator, price 9s., a slide-ventilating window, with swing casement, price 17s., an improved air-trap for cesspools, ten inches, price 7s. 9d., smaller size, cheaper, a patent gas smoothing iron, price 7s. 6d., a patent gas tailor's goose, price 10s. 6d., and a small screw jack, price 2*l.*, all manufactured by J. and W. Midworth, of Newark.

Thomas Milford and Sons, of West of England Wheel Works, Thorverton, near Collumpton, Devon.

An improved one-horse cart, for general farm, road, and harvest purposes, price 15*l.* 15s. (awarded the prize of 3*l.* by the Bath and West of England Society at Yeovil, 1856, a first prize by the same society at Newton, 1857, and a first-class prize by the Royal Agricultural Society at Salisbury, 1857), an improved model one-horse cart, for general farm, road, and harvest purposes, price 15*l.*, an improved prize two-horse waggon, price 26*l.* (awarded the prize of 5*l.* by the Bath and West of England Society at Taunton, 1852, a prize of 4*l.* at Plymouth, 1853, prize of 3*l.* at Bath, 1854, prize of 3*l.* at Tiverton, 1855, prize of 2*l.* at Newton, 1857, and a first-class prize by the Royal Agricultural Society at Salisbury, 1857), and an improved double shaft, plank side, three or four-horse waggon, price 31*l.* 10s., invented, improved, and manufactured by the exhibiters.

Powis, James, and Co., of 26, Watling-street, London.

A patent machine for mortising hard and soft wood, price 16*l.*, a patent machine for mortising and tenon-cutting hard and soft wood, price 20*l.*, and a patent machine for mortising, tenon-cutting, and boring hard and soft wood, price 21*l.*, invented and manufactured by the exhibiter; and (new implement) a patent endless-band sawing machine, price 27*l.*, invented by a Frenchman, improved and manufactured by the exhibiters.

Thomas Radcliffe, of Leamington, Warwickshire.

A Leamington cooking range, price, 6 feet, 24*l.*, and a portable cooking range, price, 4 feet, complete, 12*l.*, improved and manufactured by the exhibiter; and (new implement) an emigrant's or field-cooking range, price, 2 feet 8 inches, complete, 7*l.*, invented and manufactured by the exhibiter.

Thomas Rickett, of The Castle Foundry, Buckingham.

(New Implement) a patent locomotive steam cultivator and traction engine, of fifteen horse power, price 750*l.*, invented and manufactured by the exhibiter; a model of elastic flexible roadway, as applied to traction engines, waggons, &c., invented by the exhibiter; and a sample of the patent elastic flexible roadway.

Samuel Rowsel, of Buckland St. Mary, near Chard, Somersetshire.

An oak field gate, price 1*l.* 4s., (new implement) a Rowsell's hangings and fastenings for field gates, price 7s., Rowsell's Yeovil and Cardiff Prize Gate, price 1*l.* 2s. (this gate gained the Bath and West of England Agricultural Society's prize of 1*l.* at Yeovil, 1856, and Cardiff, 1858), a pair of oak posts, or pillars, price 13s., Rowsell's prize American horse rake, price 1*l.* 8s. and 2*l.* (was awarded four special prizes by the Bath and West of England Agricultural Society of England, and the Royal Agricultural Society of England, at Salisbury, awarded it the silver medal, 1857), all improved and manufactured by the exhibiter.

James Savory, of Tewkesbury, Gloucestershire.

A portable combined thrashing machine, price 100*l.*, invented, improved, and manufactured by the exhibiter.

Smith and Ashby, of Stamford, Lincolnshire.

A Smith and Ashby's patent double-action and reverse motion haymaking machine, price 15*l.* 15s., smaller size, 7*l.* 10s. (it took the first prize offered by the Royal Agricultural Society of England during a period of ten years in succession, without a single exception, the first prizes also of the Royal Societies of Ireland, Scotland, and the provinces were awarded to this machine during the same period, the prize medal of the Great Jubilee Meeting at Vienna, 1857, the prize medal and the prize of 200 francs, at the Paris Agricultural Exhibition, 1855-56), one of the prizes of the Royal Agricultural Society at Salisbury, 1857, and since that trial it has taken five more first prizes, being every prize offered since that show, making in all no less than thirty-six first-class prizes); a patent wheel hand rake, for hay, corn, stubbles, couch grass, &c., price 2*l.*, invented, improved, and manufactured by the exhibiters; a new two-and-a-half-horse portable steam engine, on Smith and Ashby's patent wrought-iron wheels, price 70*l.* 15s. (received the silver medal and high commendation of the Royal Society, in July last, also high commendation of the Great Yorkshire Society last July), a new three-and-a-half-horse portable steam engine, price 100*l.*, and a Smith and Ashby's portable combined thrashing, shaking, and riddling machine, price 45*l.*, improved and manufactured by the exhibiters; a Smith and Ashby's circular-saw table, price 12*l.*, manufactured by the exhibiters; a Smith and Ashby's new portable flour mill, price 17*l.*, improved and manufactured by the exhibiters; a Smith and Ashby's new portable flour mill, price, with best Peak stones, 26*l.*, manufactured by the exhibiters; a patent safety chaff-cutter, for horse, steam, or hand power, with new patented improvements, price from 3*l.* 15s. to 14*l.*, invented, improved, and manufactured by the exhibiters (amongst the numerous prizes awarded to it, are those of the Yorkshire Society, the first prize of the Bath and West of England Agricultural Society, Plymouth, the prize medal of the Great Exhibition, 1851, and it was strongly recommended to H. R. H. Prince Albert, by the engineers of the Royal Agricultural Society of England); a registered oilcake breaker, with double action for sheep and oxen, price 3*l.* 10s. (took the prize of the Bath and West of England Society in 1856, and again in 1857, it was also highly commended by the judges of the Royal Dublin Agricultural Society in 1856), a registered double-action oilcake breaker, for horse, steam, or hand power, price 5*l.* 5s., and a patent double-action haymaking machine, price 15*l.* 15s., invented, improved, and manufactured by the exhibiters.

Jonathan Stalker, of Penrith, Cumberland.

A wheel-plough adapted for general purposes, price 4*l.* 15s., a swing-plough adapted for general purposes, price 4*l.* 10s. (eleven prizes have been received for this plough from the leading shows of Cumberland, Westmoreland, Yorkshire, and Northumberland); a double plough, price 3*l.* 7s. 6d. to 4*l.* 4s. (ten prizes have been awarded to this implement within the last three years, from the principal shows of Cumberland, Westmoreland, Northumberland, and the Liverpool and Manchester, held at Wigan), (new implement) a reverse plough, price 3*l.* 15s., a prize horse-hoe, price 3*l.* 15s. (highly commended at the meeting of the Society at Salisbury, 1857), a horse-hoe, price 3*l.* 10s., a small drill grubber, price 3*l.* 3s., and a set of tubular iron whipple-trees, price 16s., all invented, improved, and manufactured by the exhibiter; and an improved plough sledge, price 10s., improved and manufactured by the exhibiter.

Thomas Stapelton, of Hull, Yorkshire.

A French mill-stone, 4 ft. diam., intended to be used as a bed-stone, price 11*l.* and 12*l.*, a French mill-stone, 4 ft. diam., intended to be used as a runner, price 12*l.*, a parcel of cast-steel mill chisels or mill bills, price 1s. per lb., a parcel of iron chisel hafts, price 10s. 6d. each, a parcel of cast-steel mill picks, price 1s. per lb., and an iron proving staff, price 2*l.*, improved and manufactured by the exhibiter; (new implement) a patent boss for driving mill-stones, price 3*l.* 10s., invented, improved, and manufactured by Mr. Harrison, of Brighouse, York; a pair of iron blocks, price 1*l.* 16s., and a cast-iron bedstone bush, price 1*l.* 1s., improved and manufactured by the exhibiter.

George Travis, of Mercaston, near Derby.

(New implement) a patent cheese-making apparatus, price £15 10s., a smaller size, price £12, invented and manufactured by the exhibiter.

John Whitehead, of Preston, Lancashire.

A drain pipe and tile machine, price £21 (prizes have been awarded to this machine at the Royal Agricultural Society's meetings, viz.: at York, 1848, £20; at Norwich, 1849, £20; at Exeter, 1850, commendation; at the Great Exhibition, 1851, prize medal; was not exhibited in 1852; at Gloucester, 1853, £10; at Lincoln, 1854, prize medal; at Carlisle, 1855, £5; at the Universal Exhibition of Paris, 1855, first-class medal; at Chelmsford, 1856, first prize; at Amsterdam, 1857, first prize; and Brunswick and Rotterdam, 1858; besides a number of prizes at local meetings); a drain pipe and tile machine, price £14 10s.; a double box drain pipe and tile machine, price £28; a double box steam power or horse power drain pipe and tile machine, price £5 5s.; an improved brick pressing machine, price £16 16s., invented, improved, and manufactured by the exhibiter; an economical chaff cutter, price £2 10s., invented and manufactured by the exhibiter; a turnip cutter, price £2 10s., improved and manufactured by the exhibiter; a combined wringing and mangling machine, price £3 10s., invented, improved, and manufactured by the exhibiter; a mangling, washing, and wringing machine, price £5 10s., improved and manufactured by the exhibiter; a pair of spring carriers-off, price 15s., invented, improved, and manufactured by the exhibiter; a patent mangle, price £8 8s., manufactured by the exhibiter; a pug mill with screening apparatus, price £28, invented and patented by W. C. S. Percy, of Manchester, and manufactured by the exhibiter; a brick making and tile machine, price £160; and a pair of large clay rollers, price £55, invented and manufactured by the exhibiter; a pipe socketing machine, price £13, invented, improved, and manufactured by the exhibiter; a brick pressing machine, price £25, manufactured by the exhibiter; double selvage diamond mesh hare and rabbit-proof netting, price 3d. to 9d. per yard, invented, improved, and manufactured by the exhibiter.

Ransomes and Sims, of Ipswich, Suffolk.

(New implement) a set of patent steam ploughing apparatus, price £670, invented by John Fowler, of London, improved and manufactured by the exhibiters; (new implement) a set of patent independent steam ploughing apparatus, price £370, invented by John Fowler, of London, and A. Eddington, of Chelmsford, improved and manufactured by the exhibiters; (new implement) a patent trussed beam iron plough, price £4 5s. to £5 15s.; and (new implement) a moulding or double tom iron ridging plough, price £3 5s., invented, improved, and manufactured by the exhibiters; a Cotgreave's patent trenching and subsoil plough, price £10 10s., invented by R. Cotgreave, of Chester, improved and manufactured by the exhibiters (awarded the silver medal at Lincoln 1854, at Carlisle 1855, and at Chelmsford 1856); a Lowcock's patent iron one-way or turnwrest plough, price £6 5s. invented by Henry Lowcock, of Devonshire, improved and manufactured by the exhibiters (awarded the silver medal at the Royal Agricultural Society's meeting at Southampton, prize of £5 at Shrewsbury, prize of £5 at Exeter, prize of £7 at Lewes, prize of £7 at Gloucester, prize of £2 at Chelmsford) ; a set of four light East Anglian seed harrows, price £4 15s. (prize of £2 at Chelmsford, 1856); a set of four medium ditto, price £5 ; a set of four heavy ditto, price £5 5s.; an improved Scotch grubber with fore and hind wheels, price £6 10s. ; an improved two-horse scarifier or cultivator, price £10 ; an improved wrought iron scarifier, price £16 (prize of £2 at Chelmsford, 1856) ; a jointed wrought iron barley roller, 14 inches diameter, price £11 10s., if with 10-inch cast cylinders £9 ; a 24-inch three-cylinder field roller, covering 6 feet 6 inches, price £13 10s. (received the first prize of £2 at Chelmsford, 1856) ; an 18-inch three-cylinder ditto, covering 6 feet 6 inches, price £10 10s.; and a wrought iron 20-inch three-cylinder field roller, price £11 10s., invented, improved, and manufactured by the exhibiters ; a Crosskill's patent clod crusher, 6 feet wide, price £16 10s., invented by W. Crosskill, of Beverley, improved and manufactured by the exhibiters ; (new implement) a patent solid beam plough with two wheels, price £4 7s. 6d. and upwards ; a light pony plough fitted with one wheel, price £2 ; a one-horse plough with one wheel, price £2 12s. 6d. ; a small double tom or moulding plough, price £2 10s. ; a patent universal ridge plough, price £5 10s. (a silver medal was awarded to this plough at Norwich, 1849); a strong solid beam iron plough, price £5 5s.; a two-horse double furrow plough, price £5 10s. ; a set of patent trussed whippletrees, price £1 5s. (awarded a silver medal at the Royal Agricultural Society's meeting at Derby, 1843, and at Southampton, 1844 ; at Lewes, 1852, commended) ; a set of irons for a Shrewley skim for use on an ordinary plough, price £1 5s. ; and a wrought iron horse hoe with expanding harrow, price without harrow £3, with expanding harrow £3 10s., all invented, improved, and manufactured by the exhibiters ; a Nicholson's patent double action haymaking machine, price £16 16s., invented by W. N. Nicholson, of Newark, improved and manufactured by the exhibiters (received the first prize of the Royal Agricultural Society's meeting at Salisbury, 1857) ; a horse drag rake, with twenty-four iron teeth, price £7 15s., with steel teeth £8, larger sizes £8 10s. and £10 10s. (received the first prize of the Royal Agricultural Society's meeting at Salisbury, 1857) ; and a chaff cutter for horse or steam power, price £16, invented, improved, and manufactured by the exhibiters ; a patent cam chaff cutter with wrought iron legs, price £5 5s., invented by G. A. Biddell, improved and manufactured by the exhibiters (received the first prize at the Royal Agricultural Society's meeting at Chester, 1858) ; a hand power chaff cutter, price £3 10s. and £4 4s., invented, improved, and manufactured by the exhibiters ; a Biddell's patent bean cutter, price on wood stand £3 15s., on iron stand £4 (awarded the silver medal at the Royal Agricultural Society's meeting at Gloucester, 1853) ; a Biddell's patent steel oat mill, price on wood stand 3*l*. 10s., iron ditto 3*l*. 15s. ; a Biddell's combined patent bean and oat mill, price on wood stand 5*l*. 15s., iron ditto 6*l*. ; and a Biddell's patent combined bean and oat mill and oilcake breaker, price 7*l*. 10s., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibiters ; a bruising mill on iron stand, price 7*l*. 10s., invented, improved, and manufactured by the exhibiters ; a Biddell's patent universal mill, price 9*l*. 10s., invented by J. Biddell, of Ipswich, improved and manufactured by the exhibiters ; a smooth roller bruising mill, price 10*l*. (received the first prize of the Society's show at Chester, 1858) ; and an oilcake breaker, price 2*l*. 15s. and 4*l*., invented, improved, and manufactured by the exhibiters ; a Biddell's patent root cutter, price 5*l*. 5s. and 6*l*. 6s., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibiters ; a Gardner's single action turnip cutter, price 4*l*. 10s. ; a Gardner's double action turnip cutter price 5*l*. 10s., invented by J. Gardner, of Banbury, improved and manufactured by the exhibiters ; a hand turnip cutter, price 1*l*. 12s. 6d. ; a one-horse gear with intermediate motion, price 13*l*. ; an improved circular-saw table, price 15*l*. ; a two-horse power portable thrashing machine, price 42*l*. ; a patent portable combined chaff cutter and universal mill, price 50*l*. ; a horizontal stationary steam engine of 8-horse power, price 103*l*. (received the Society's prize of 10*l*. at Lewes, 1852 ; first prize of 20*l*. at Lincoln, 1854 ; and first prize of 20*l*. at Carlisle, 1855) ; an improved dressing machine, price 9*l*. ; a circular pig trough, price 10s. ; a circular hog trough, price 18s. ; a set of five pig troughs, price from 1s. 9d. to 8s. 3d. each ; a set of five hog troughs, price from 4s. 9d. to 14s. 3d. each, invented, improved, and manufactured by the exhibiters ; a Budding's improved grass cutter, price 5*l*. 17s. 6d., invented by E. Budding, of Dursley, improved and manufactured by the exhibiters ; a 90-gallon water or feeding pan, price 2*l*. 15s. ; a 45-gallon water or feeding pan, price 1*l*. 16s. ; a small oblong water trough, price 9s. ; a round water or feeding trough, price 6s. ; a small water pan, price 1s. 10d. ; an improved wrought iron lifting jack, price 1*l*. 10s. ; an improved double handle sack barrow, price 16s. ; and (new implement) a patent universal chaffcutter, price 10*l*. 10s., invented, improved, and manufactured by the exhibiters ; a patent universal drill, price 12*l*. 10s., invented by A. G. Biddell, of Ipswich, improved and manufactured by the exhibiters ; an oilcake breaker, price 5*l*. 5s., invented, improved, and manufactured by the exhibiters ; a Biddell's patent root cutter, price 7*l*. 10s., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibiters (obtained the first prize at the Royal Agricultural Society's meeting at Chester, 1858) ; a patent chaffcutter for steam power, price 24*l*. ; a bruising mill for hand, horse, or steam power, price 16*l*. 16s. ; an oilcake breaker, price 12*l*. ; a double cylinder portable steam engine of 14-horse power, price 350*l*. ; a combined steam thrashing machine, price with common drum and iron wheels, 100*l*. ; a 7-horse power portable steam engine, price 210*l*. (obtained the prize of 10*l*. at the Royal Agricultural Society's meeting at Lincoln, in 1854) ; a combined portable finishing thrashing machine, price 125*l*. ; an 8-horse power portable steam engine, price 215*l*. ; a 3-horse power portable thrashing machine, price 75*l*. ; a 3-horse power portable steam engine, price 125*l*. ; and two sets of intermediate driving gears for machinery in motion, price 15*l*. 15s., invented, improved, and manufactured by the exhibiters.

JAMES A. BRUCE, of Broadwell, near Rugby, Warwickshire.

A set of stable fittings, invented and improved by the exhibiter, and manufactured by Ransomes and Sims, of Ipswich, price £20, hayrack 66s., plain manger 19s. 6d., enamelled manger 30s. 6d , safety tying apparatus 22s. sieve, 13s.

CHARLES WHITEMAN, of Dunchurch, Warwickshire.

A farm gate, invented, improved, and manufactured by the exhibiter, price 24s.

HENRY ATWOOD THOMPSON, of Lewes, Sussex.

An improved land roller, with single shafts, price £10 10s. (for trial) ; an improved land roller with double shafts, price £13 ; a cast iron trough, for loading roller, price £2 ; an economic drainage level (awarded a silver medal at Lincoln, 1854, and a gold medal at Paris, 1856), price 38s. ; and an improved economic draining level, price 55s., invented, improved, and manufactured by the exhibiter ; a prize telescope draining level, invented and manufactured by the exhibiter (awarded a silver medal at Gloucester in 1853, and a gold medal and 100 francs at Paris in 1856), price £5 10s. ; an improved telescope level, invented, improved, and manufactured by the exhibiter, price £6 16s. 6d. ; a surveyor's cross, manufactured by the exhibiter, price 25s. ; a workman's level, for working to any uniform slope (commended at Salisbury, 1857), price 18s. 6d. ; a graduated levelling staff, with sliding vane, price 12s. 6d. ; anda portable levelling staff, price 20s., invented and manufactured by the exhibiter ; an assortment of measuring chains, improved and manufactured by the exhibiter, price, light 5s., strong 7s. 6d. ; a set of arrows for measuring, ten in number, with bow handles, manufactured by the exhibiter, price 3s. ; a portable pump, with 5-inch working barrel, price 65s. ; a tripod stand and basket for pump, price 20s. ; a portable pump with flexible hose, price £5 10s. ; a patent haymaking machine, with reverse action, invented and manufactured by the exhibiter (awarded the first prize at Paris in 1856, and a prize at the Royal Agricultural Society's show at Salisbury in 1857), price £16 16s. ; a patent haymaking machine, price £16 16s. ; a single action haymaking machine, price £12 ; and a horse drag rake, for hay, corn, and stubble, price £8, invented and manufactured by the exhibiter ; a prize combined one horse cart, water cart, and manure irrigator, invented, improved, and manufactured by the exhibiter (awarded a gold medal and 250 francs at Paris in 1856, and highly commended at Salisbury in 1857) price £15; a set of carved harvest raves, invented and manufactured by the exhibiter, price 40s.

Robert Tinkle, of Penrith, Cumberland.

Several sizes of a patent revolving barrel churn, invented, improved, and manufactured by the exhibiter, price 60s. to 90s.

Wilkinson, Wright, and Co., of Boston, Lincolnshire.

A seven horse portable steam engine, price £205, on iron wheels £200; and a three horse portable steam engine, price £120, improved and manufactured by the exhibiters; a combined thrashing and dressing machine, improved by John Coulson, of Newark and the exhibiters, and manufactured by the latter, price £125.

J. B. Brown and Co., of 18, Cannon-street, City, London.

(New implement.)—A patent grubbing and harrowing land roller and clod crusher, for preparing the soil for green crops, invented by Mr. Campbell, and manufactured by Messrs. Shanks and Son, of Dens Iron Works, price £15; a patent lawn mowing and rolling machine, price £7 17s. 6d.; and a patent lawn mowing and rolling machine, invented, improved, and manufactured by Messrs. Shanks and Son, of Dens Iron Works, suitable for pulling only, price £6; wrought iron hurdles, price 5s. 3d. to 8s. 10d.; wrought iron continuous round-bar fence, for horses, cattle, sheep, and lambs, price 3s. 4d. per yard; wrought iron continuous flat-bar fence, for horses, cattle, sheep, and lambs, price 3s. 4d. per yard; a portable hare and rabbit-proof ornamental hurdle, price 6s. 6d. and upwards; an ornamental wicket gate, price 35s.; an improved wrought iron field gate, price 50s.; an improved wrought iron field gate, price 45s.; a wrought iron field gate, for hanging to wood posts, price 20s.; a wrought iron carriage gate, price £7; a small fine carriage gate, for pony drives, price £5 10s.; Galvanized wire netting, price 4½d. per yard and upwards; wrought iron folding garden stools, price 4s. 6d. each; small size folding garden stools for children, price 3s. 6d. each; wrought iron portable garden seats, price 4s. 6d. each and upwards; an ornamental cast iron garden chair, price 42s. 6d.; an ornamental cast iron Medici vase, with figures, price 47s. 6d. and upwards; ornamental wire work flower stands, price 4s. 6d. and upwards; a wire work garden archway, price 45s. and 55s.; a wire work column archway, price 35s. 6d.; wire work suspending flower baskets, price 2s. 6d. and upwards; superior prepared fencing wire, price 7s. 9d. per bundle; an iron garden roller, fully mounted with back balance, complete, price 75s.; an improved garden barrow engine, with registered spreader, price 75s.; a wrought iron sack barrow, price 11s. 6d., lighter 9s. 6d.; a wrought iron wheelbarrow, price 23s. 6d.; a sheep folding hurdle, price 5s.; and improved iron corn rick stand, price £9 15s.; and a specimen of an improved iron pillar and cap, of increased height and strength, made to support wood frames, price 5s.

Wm. Choyce and Son, of Sibson, near Atherstone, Warwickshire.

A combined corn roughing, blowing, and dressing machine, price from 8*l.* to 10*l.* 5s.; a single roller curd mill, price 22s. 6d. to 42s. 6d.; a deal mangle, price 85s., invented, improved, and manufactured by the exhibiters.

Cottam and Company, of 2, Winsley-street, London, W.

A cast iron stable post with ball top, price 42s.; a cast iron post, price 42s.; a door for loose box, price 92s. 6d.; a wrought iron bar pannel, price 8s. per foot; a cast iron bottom cill, price 1s. per foot; and a side of loose box, price 8s. per foot, manufactured by the exhibiters; a wood partition of loose box, and back of loose box, price 1s. per foot; a wrought iron ring, price 3s. 3d.; an improved trap for drains for stables, price 10s.; a sample of surface drains with safety covers, price 2s. 6d. per foot, angle for do. 3s. 6d.; and improved shape manger top for the corner of loose box, price 87s.; a patent enamelled manger and rack, price 68s. 6d.; a patent enamelled manger, rack, and water trough, price 78s. 6d.; a stall partition pannel, price 47s. 6d.; a patent galvanized wrought iron seed box, price 8s. 6d.; a Cottam's patent drop cover, price 3s. 6d.; a sample of Cottam's patent halter guide and collar reins, price 10s. 6d. each; a diamond ventilating ramp of cast iron with top rail and middle do. to receive wood partition, price 70s.; an ornamental cast iron horseshoe and brass ring for rack chain, price 3s. 6d.; a 9 inch square ventilators to open and shut, price 2s. 9d.; a sanitary trap, price 8s. 6d.; a sample of improved surface drain, price 2s. 6d. per foot; a patent tying apparatus, and leather collar, rein, chain, and spring hook, price 14s.; a division to form a loose box or two stalls, price 17*l.* 2s. 6d.; a round loose box post, ornamental top, price 45s.; a sample of diamond pannelling, price 11s. 6d. per foot; a cast iron socket, for shifting post, price 9s.; a shifting post, of wood, price 15s.; a swing bail, or board and chains, price 15s.; cattle troughs, galvanized, price 30s. 6d. and less; a Cottam's patent saddle and harness airing and drying horse, invented and manufactured by the exhibiters, price 12*l.*; a sample of cast iron saddle and harness bracket, price 5s. and upwards; an improved collar holder, price 2s. 6d. each; a harness bridle holder, price 1s. 6d. each; a saddle bridle holder, price 10d. each; rosettes, rings, ribbons, and whip hooks, price 4d., 9d., 1s., 2s. 6d., and 4s. each; bright chains, price 3s., 3s. 6d., and 4s. each, galvanized chain 1s., 1s. 9d., and 2s. each, japanned do. 10d., 1s. 3d., and 1s. 6d. each; a harness cleaning hook, price 7s. 6d. and upwards; wrought iron corn bins, price 30s. and upwards; and improved iron spout corn metre, price 7s. 6d., iron supply pipe 1s. per foot, hopper 3s. 6d.; an Indian corn mill or thresher, price 6*l.* 10s.; a serrated chain harrow, price 90s. and 50s.; an odometer or land measure, price 63s.; and a dynamometer or draught gauge, price 7*l.*, invented by George Cottam, of Wimbledon, and manufactured by the exhibiters; a carriage jack, price 25s.; a wrought iron carriage setter, manufactured by the exhibiters, price 18s. to 25s.; open air gratings, price 6d. to 9d. per foot run; dog troughs, price enamelled 4s. 6d. to 7s. 6d.; pig troughs, price 7s. 6d. to 10s.; galvanized stable pails, manufactured by the exhibiters, 3s. to 5s. each; cast iron enamelled pails, price 3s. 6d. to 6s. 6d. each; cast iron pumps, price 38s. and upwards; stable forks, price 1s. 6d. and 2s. 6d., bright 3s. 6d. each; stable shovels, price 1s. 9d. to 3s. each; cast iron enamelled bowls, price 2s. 9d. to 4s. each; and candle lanterns, manufactured by the exhibiters, price 2s. 6d. 6d. to 7s. 6d. each; safety lanterns, price 15s. each; a harness room stove and boiler, price 40s.; loose box and stable door latches and fastenings, price 1s. to 16s. 6d., flush rings and plates 4d. to 2s. 6d. brass; sack trucks, price 14s. and 21s. each; corn measures, price 1s. to 8s. each; and garden seats, price 12s. 6d. to 21s. each.

John Samuel Dawes, of Smethwick House, near Smethwick, Staffordshire.

(New implement) a digging or forking machine or cultivator, invented and manufactured by the exhibiter, price 100*l.*

James and Frederick Howard, of Britannia Iron Works, Bedford.

Several of Howard's new patent iron ploughs, with two wheels, price 4*l.* 5s. 6d. & 4*l.* 2s. 6d. (received the first prize at the Society's Meeting at Chelmsford in 1856, as the best plough for general purposes, as well as the first prize for light land at the same meeting, also ten other first prizes at previous meetings of the Society), a new patent iron fen plough, with two wheels, price, with skim-coulter complete, 6*l.*, a new patent wrought-iron Colonial wheel plough, price, with steel-breast, 5*l.* 8s. and under, a new patent iron swing plough, price, with slide-foot to regulate depth, 4*l.* 18s. 6d., a new patent iron plough, price 4*l.* 7s. 6d., a patent iron plough, with two wheels, price 4*l.* 5s. 6d., skim-coulter 5s. 6d., drag-chain 2s. extra (is the one with which the exhibiters won so many first prizes from the Royal Agricultural and other national Societies), a patent one-horse iron plough, with two wheels, price 3*l.* 5s., fitted with steel breast 5s. extra, a patent iron draught plough, with one wheel, price 2*l.* 5s., a new patent iron plough, with two wheels, price 5*l.* 13s., a patent double-furrow plough, price 6*l.* 6s. and under, a patent subsoil plough, or subpulverizer, price 3*l.* 15s. 6d., a patent ridge or double-breast plough, price 2*l.* 15s. and upwards, (a larger size of this plough was awarded the only prize ever offered by the Royal Agricultural Society of England for ridging ploughs, at the Chelmsford meeting), (new implement) a patent draining plough, price 6*l.* 10s., and a new patent paring or skim plough, price 6*l.*, all invented and manufactured by the exhibiters; a patent iron plough for steam power, price 50*l.*, invented by the exhibiters and R. Chandler, and manufactured by the former; ploughshares and plough fittings, price 8s. 6d. to 20s. per dozen, and a wrought-iron plough sledge, price 8s., invented and manufactured by the exhibiters; an improved dynamometer or draught gauge, price, including strong oak case, 3*l.* 10s., improved and manufactured by the exhibiters; a set of patent jointed harrows, price 5*l.* 6s., and under (awarded the following prizes at the Chelmsford meeting: the first prize for the best general purpose harrows, the first prize for the best light harrows, the first prize for the best drag harrows), a set of patent jointed harrows, price 3*l.* 12s. (received the first prize for the best light harrows at Gloucester, Lewes, and Chelmsford), a set of patent iron harrows, price 4*l.*, and under, a set of patent iron drag harrows, price 6*l.* 6s., and under, a set of patent Colonial harrows, price 4*l.* 4s., and upwards, a set of trussed whippletrees, price 11s. 6d., a set of trussed tubular iron whippletrees, price 17s 6d., a set of three-horse tubular trussed iron whippletrees, price 1*l.* 6s., a set of four-horse ditto, price 2*l.* 10s., and upwards, and a Bedfordshire scarifier, price 6*l.* 10s. to 12*l.*, all invented and manufactured by the exhibiters; an improved press-wheel roller, price 18*l.*, improved and manufactured by the exhibiters; an improved horse hoe, price 2*l.* 5s., and upwards (received the two first prizes from the Royal Agricultural Society of England), a patent horse rake, price 7*l.* 10s, and upwards (received the three first prizes of the Royal Agricultural Society), and a Howard's improved drill presser, price 16*l.* (received the silver medal of the royal Agricultural Society of England at the Salisbury meeting) improved and manufactured by the exhibiters.

JAMES and FREDERICK HOWARD, of Bedford; and WILLIAM SMITH, of Woolston, Buckinghamshire, and 40, Mark-lane, London.

A set of patent apparatus for cultivating land by steam power, invented by William Smith, of Woolston, and manufactured by J. and F. Howard, of Bedford, price £205; a set of patent apparatus for cultivating the land by steam power, invented by the exhibiters and manufactured by J. and F. Howard, of Bedford, price £250; a patent self propelling portable steam engine, price £350; and a portable steam engine, price £250, invented and manufactured by Clayton and Shuttleworth, of Lincoln; a Smith's patent steam cultivator, price £16 10s. and £17 10s.; a Smith's patent trenching and subsoiling plough, price £21; and a Smith's subsoil plough, price £4, invented by William Smith, of Woolston, and improved and manufactured by J. and F. Howard, of Bedford.

The Right Hon. Lord LEIGH, of Stoneleigh Abbey, near Kenilworth, Warwickshire.

A field gate, improved and manufactured by the exhibiter, price 24s.

PROCTOR and RYLAND, of Emscote; Warwick; Great Lister-street, Birmingham; Saltney, near Chester; and Cathay, Bristol.

Turnip and mangold manure, wheat manure, barley manure, and oat manure, all price £8 per ton; grass manure, price £7 10s. per ton; grass manure for mowing land, price £8 10s. per ton; grass manure for grass land, with a light subsoil, price £8 per ton; potato manure, price £8 per ton; and a bone superphosphate of lime, price £7 per ton, all manufactured by the exhibiters.

HENRY PAIN, of Bedford.

(New implement) a patent cattle fastening, price 4s. 6d., lever for outside of building 7s. 6d. extra; and (new implement) a patent horse fastening, price 3s. 6d., invented by G. W. Baker, of Woburn, and manufactured by the exhibiter.

RD. FORSHAW, and Co., of Liverpool.

A two ton cart and cattle weighing machine (obtained the prize of the Royal Agricultural Society of Ireland 1858), price £18; a sheep weighing machine, price £7 10s.; and a sack weighing machine, price £5 5s., invented, improved, and manufactured by the exhibiters; a hay and straw cutter, price 70s. and £5; and a bean and oat crusher, price £6 10s., manufactured by the exhibiters; a Dray's champion reaping machine, invented by Obed Hussey, of the United States, improved by Wm. Dray and Co., of London, and manufactured by the exhibiters (received many prizes both from the Royal Agricultural Society and other local societies, and many continental agricultural exhibitions: at the adjourned trial at Boxted in 1856, the judges awarded a prize of £15 to this machine: the Austrian gold medal of honour was awarded to it in 1857), price £25; a wrought iron sack truck, price 13s. and 16s. 6d.; and a combined wheat mill and dressing machine, price £7, invented, improved, and manufactured by the exhibiters (obtained many prizes at various agricultural society's shows); and a set of harrows, manufactured by the exhibiters, price 68s.

HUXHAMS and BROWN, of Exeter, Devonshire.

A millstone of French burrs, price £11; and a millstone runner of French burrs, price £11 10s.; manufactured by the exhibiters; a Stevens's patent bread making machine or dough mixer, invented by Mr. Stevens, of London, and manufactured by the exhibiters, price £48 10s.

PHILIP JOHNSTON, of 290, Oxford-street, London.

A butter churn to make one pound of butter, price 15s.; to make two pounds, 18s.; to make four pounds, 25s.; (new implement) to make 6lbs., price 30s.; to make 8lbs., 32s. 6d.; to make 10lbs., 35s.; to make 12lbs., 37s. 6d.; to make 15lbs., 42s., 6d.; to make 20lbs., 50s.; to make 25lbs., 65s.; and to make 30lbs., 81s. 6d., invented, improved, and manufactured by the exhibiter; a Baker's patent mangle, invented by Baker, of Fore-street, City, improved and manufactured by the exhibiter, price £10 10s.

THOMAS LUCK, of Spalding, Lincolnshire.

(New implement) a patent clover, rye grass, and flax seed drill, with horse rake combined, price £25; and an improved lever horse rake, for hay, corn, or twitch, price £8, invented and manufactured by the exhibiter; and a dressing machine, with patent elevator and weighing machine combined, invented by S. Campain, Esq., of Deeping, St. Nicholas, and manufactured by the exhibiters, price £25.

MCNAUGHT and Smith, of Worcester.

A commodious double Brougham, for one or two horses, improved and manufactured by the exhibiters, price £150; a waggonette for one or two horses, price £90; a light dog cart phaeton, price £65; and a light Malvern dog cart, for two or four persons, price £45, invented and manufactured by the exhibiters.

GEORGE MILFORD, of Thorverton, near Cullompton, Devonshire.

(New implement) an iron plough, invented and manufactured by James Wright, of Sandford, Devon (received the first prize of the Bath and West of England Society, at Newton, 1857, at Cardiff, 1858), price 85s.; (new implement) a strong light built two horse waggon (the prize of £3 was awarded to it by the Bath and West of England Society at Yeovil 1856, and a prize of £1 by the Royal Agricultural Society at Salisbury 1857, and half the prize by the Bath and West of England Society at Cardiff 1858), price £25; and (new implement) an improved one horse cart, invented, improved, and manufactured by the exhibiter (highly commended at Yeovil 1856, also at Salisbury 1857, and awarded half the prize by the Bath and West of England Society at Cardiff 1858), price £15.

FRANCIS PARKES & Co., of Sutton Coldfield, Warwickshire.

Warwickshire draining tools, price £1 19s.; draining tools, price £1 6s.; solid cast-steel forks, price 3s. and upwards; assorted cast-steel digging forks, price 3s. 9d. and upwards, manufactured by the exhibiters; cast-steel manure forks, price 4s. and upwards; cast-steel cottage garden forks, price 3s. 9d. and upwards; assorted cast-steel hay forks, price 1s. 9d. and upwards; cast-steel unloading and pitching forks, price 3s. 6d. and upwards; cast-steel blued hog forks, price 2s. 3d. and upwards; assorted manure drags, price 4s. and upwards; assorted cast-steel spades, price 4s. 3d. and upwards; assorted cast-steel hoes, price 1s. 2d. and upwards; assorted cast-steel shovels, price 3s. and upwards; assorted cast-steel surface spades, price 3s. 3d. and upwards, all improved and manufactured by the exhibiters.

JOHN R. PEILL, of 17, New Park-street, Southwark, London.

(New implement) a model of a patent self-regulating wind engine, invented by W. H. Jahn, of America, and improved and manufactured by the exhibiter; an iron hurdle for folding sheep or cattle, manufactured by the exhibiter, price 4s. 9d.; a case of patent liquid-gas lamps, price from 3s. 6d. each.

GEORGE TURNER, of 196, Great Dover-street, Borough, London.

(New implement) two new egg whisks and cream whipping machines, price £1 1s. and £1 10s., invented and manufactured by the exhibiter; a magic churn and mixing machine, price £1 10s., manufactured by the exhibiter (awarded two prizes by the Royal Agricultural Society of England); (new implement) a new churn, price £2 10s., invented and manufactured by the exhibiter; a patent domestic flour mill, price £8 10s.; (new implement) a patent bread-making and dough-mixing machine, price £1 15s.; (new implement) a patent roasting-jack, combined with self-acting baster, price £2 10s.; (new implement) a patent percolating baster, price 2s. 6d.; a patent sausage-making and mincing machine, price £1 10s.; a patent rotary knife-cleaning machine, price £4 and £3 10s., invented and manufactured by Gollop and Co, of London; (new implement) a patent round dozen knife-cleaning machine, price £1 10s.; (new implement) a John Bull patent metal vent peg, price 1s. 6d., invented and manufactured by the exhibiter; a cucumber slicer, price 1s., manufactured by the exhibiter; (new implement) a patent Oxonian knuckle washing machine, price £2 15s., invented and manufactured by Wheeler and Co., of Oxford; (new implement) an improved washing machine, price £6 6s.; a patent mangle, price £4 10s.; an American patent cooking stove and oven, price £5 5s.; a patent portable copper, price £2 5s.; an improved patent cooking range, price £10 10s.; (new implement) a patent filter, price £2 10s.; (new implement) a patent lamp, called the Bude Light—this lamp and one gallon of the patent oil is carefully packed and booked to any address for £1 1s.; (new implement) a registered crib-biting preventive horse's-head collar, price £1 10s, invented and manufactured by T. Cook, of 4, Hay's-mews, Berkeley-square; a sample of patent food for cattle, price £2 2s. per cwt.; a patented apparatus for stopping the wheels of carriages, price 10s. 6d.

WILLIAM PIERCE, of 4, Adelaide-place, London Bridge, London.

A horizontal 8-horse power steam engine, price 120*l*., and (new implement) a patent vertical tubular self-complete boiler, suited for the above engine, price 60*l*., invented and manufactured by J. Young, of Edinburgh; (new material) patent slab roofing material price 3d. per foot, and strong wire netting, manufactured by E. Allen, of Park-side, Knightsbridge, price commencing at 2½d. per foot; (new implement) a patent truck sack weighing machine, to weigh 3 cwt., price 3*l*. 10s., and (new implement) a patent weighing machine, for dairy purposes, price 2*l*., invented and manufactured by E. Dowling, of Little Queen-street, London; two galvanized wrought-iron cattle troughs, price 2*l*. 10s. and 1*l*. 2s., and a wrought-iron water cistern, price 3*l*. 5s., invented and manufactured by Fraser and Son, of Commercial-road East, London; a portable wrought-iron forge, with square bellows, price 5*l*., invented and manufactured by A. Wright, of London; (new implement) Boyd's patent brush lawn mowers, three sizes, price 6*l*. 6s. and upwards, invented and improved by Jas. Boyd, of London, and manufactured by B. Samuelson, of Banbury, Oxon; a Boyd's patent self-adjusting scythe, price 10s. 6d., invented by James Boyd, of Lewisham, and manufactured by Wm. Dray and Co., of London; cast-steel 5-tined digging forks, price 5s. 6d. each, invented by Francis Parkes, of Birmingham, improved and manufactured by F. Parkes and Co., of Birmingham (have received prizes at various meetings of the Royal Agricultural Society, and also at numerous other shows throughout England); a bundle of vulcanized India-rubber driving bands, price 1s. per foot and upwards, vulcanized India-rubber delivery hose, price 6d. per foot and upwards, and vulcanized India-rubber suction hose, price 1s. 3d. per foot and upwards, invented and manufactured by William Hooper, of Mitcham, Surrey; patent flax hose, price 4d. per foot and upwards, and (new article) patent flax driving bands, price 8d. per foot and upwards, invented and manufactured by Smith and Co., of Leyland; (new article) emery scythe rubbers, price 1s. each, invented and manufactured by the exhibiter; corn bins, price 1*l*. 7s. and upwards; two improved winnowing machines, with hand-made screens, price 10*l*. 10s. and 12*l*. 12s.; a garden engine, price 4*l*. 14s., and a patent tubular gate, price 2*l*. 2s., invented and manufactured by Wm. Dray and Co.; elegant flower-pots, price from 1s. 4d. to 3s. 6d., manufactured by H. V. Selmtz, of Germany; a Dray's patent champion reaper, price 25*l*., invented by Obed Hussey, of Baltimore, U.S., improved and manufactured by Wm. Dray and Co.; a portable vice table, price 2*l*. 12s. 6d., manufactured by Wm. Dray and Co.; an ornamental flower stand, price 2*l*. 5s., with flower-pots 10s. 6d. extra; an ornamental table, price 1*l*. 16s.; an ornamental garden seat, price 2*l*. 10s., and an ornamental garden chair, price 1*l*. 12s., invented and manufactured by the Coalbrookdale Company; (new implement) a patent indicator gauge and self-acting syphon tap, price 5s. 6d., invented by James Boyd, of Lewisham, and manufactured by C. Bolten and Son, of Crawford-passage, Clerkenwell, London; patent socket screws, notched, price 1*l*. 13s. 6d., also from 30s. to 60s, according to size, invented anp manufactured by Hughes and Son, of Dover-road, London; patent screw band punches, price 14s. each, manufactured by J. Buck, of Newgate-street, London; (new implement) Glenny's watering-pots, price from 2s. 3d. to 6s., manufactured by Lovesidge and Shoolbred, of Wolverhampton; a great variety of ornamental flower baskets, price from 2s. to 10s., invented and manufactured by Caston and Co., of London; (new implement) a Lumb's patent squeegee (one bundle), various sizes, from 5s. 6d. each, invented by Lumb, and manufactured by Perreaux and Co., of London; patent improved churns, various sizes, from 1*l*. 5s.; dairy utensils, price from 6d. each, and two ornamental wire flower stands, price 16s. and 1*l*., invented and manufactured by Caston and Co.

PRIEST and WOOLNOUGH, near Kingston-on-Thames, Surrey, S.W.

A nine-row lever corn drill, price 22*l*.; a thirteen-row lever corn drill, 27*l*., and a fore carriage steerage, price 4*l*. 10s., improved and manufactured by the exhibiters; a patent lever horse-hoe, price 17*l*., invented, improved, and manufactured by the exhibiters (received a prize of 2*l*. at the Salisbury show, 1857); an improved lever horse-hoe, price 11*l*. 10s., invented and manufactured by the exhibiters; a patent turnip duster and fly destroyer, price 18*l*., invented by J. Jephson Rowley, of Rowthorne, improved and manufactured by the exhibiters (received the silver medal at the Chester show, 1859); a turntable skid, price 10s., invented and manufactured by the exhibiters.

GEORGE WILLIAM ROBINSON, of Barton-upon-Humber, Lincolnshire.

(New implement) a patent three-horse power clod crusher, roller, or pulverizer, price £17; (new implement) a two-horse clod crusher or pulverizer, and press wheel and general purpose roller, price £15 10s.; (new implement) a one-horse power ditto, price £12—all invented, improved, and manufactured by the exhibiter.

WILLIAM TORR, of Aylesby Manor, near Grimsby, Lincolnshire.

A farm gate, invented, improved, and manufactured by the exhibiter, price £1.

JOHN RICHARDSON, of Brunton Place, near Carlisle, Cumberland.

Two corn dressing machines, invented, improved, and manufactured by the exhibiter, price £7 10s. and £8 8s. (have been awarded nearly thirty prizes during the last nine years, including the first prize at the great show of the Highland Agricultural Society of Scotland, held at Glasgow in 1857.

JOHN WARNER AND SONS, of 8, Crescent, Jewin-street, London.

(New implement) a turnip-cutter, price £4 10s., improved and manufactured by the exhibiters; (new implement) two double-action force pumps on barrow, with air vessels, price £4 and £6, invented and manufactured by the exhibiters; an overshot water-wheel, price £40; a cast-iron frame, wheel, and pinion, for horse and other power, price £38 10s.;

a cast iron frame, price £20; a cast-iron engine frame, with fly-wheel and handle, price £10 10s.; a cast-iron engine frame, wheel, and pinion, with fly-wheel, handle, and crank, price £18 10s.; a 3″ full water-way pump, price £11, £19, and £27; a double barrel 5″ force pump or irrigator, mounted on four strong wheels, price £21; a brewer's or other force pump, price for 3½-inch £11 10s.; a cast-iron pump case, price £6; two cast-iron 3″ working barrels for deep wells, price £1 8s. and £2 1s.; a cast-iron suction rose for 3-in. pump, price 7s.; and a 3½-inch garden pump, price £3, all improved and manufactured by the exhibiters; a patent 2½-inch long barrel cast-iron lift pump, price £1 14s.; a patent 3-inch ditto, price £2 8s.; a patent 3½-inch cast-iron lift pump, price £2 12s.; a patent 4-inch ditto, price £3 3s.; two 3½-inch patent cast-iron lift and force pumps, price £3 3s. and £4 14s.; a 3-inch patent ditto, price £4; a patent 2½-inch short barrel cast-iron lift pump, price £1 10s.; a patent short barrel cast-iron pump on plank, price £1 15s.; a patent 2½-inch short barrel cast-iron lift and force pump, price £3 7s.; a patent 2½-inch cast-iron lift and force pump on barrow, price £5 14s.; a turnip and mangold grater, price £4 10s.; a patent 3-inch cast-iron straight pump case, price £2 10s.; a 4½-inch liquid manure or general portable pump, price £3 3s.; a 4½-inch liquid manure pump, with copper barrel, price £3 17s., and a liquid manure pump for cart, price £2 10s., all invented and manufactured by the exhibiters; a 3-inch brass pump on a square tail, price £5 7s.; a 2½-inch double barrel pump for deep wells, price £10; a 2½-inch patent lift pump, price £3 2s.; a 3-inch strong lift and force pump, price £7 9s.; a 3½-inch patent strong lift and force pump on plank, price £8; a wrought-iron barge or agricultural pump, price £3 6s., manufactured by the exhibiter; a copper pump, price £3 4s., improved and manufactured by the exhibiters; a water ram, price £11 10s., manufactured by the exhibiters; a patent beer engine, with opal handle, price £2 12s., invented and manufactured by the exhibiters; a 24 gallon oval oak tub garden engine, with registered spreader, price £6 18s., improved and manufactured by the exhibiters (smaller sizes less); a garden engine in galvanized iron pail, price £4 4s.; a patent conservatory pump, price £2 12s.; and a portable fire engine, in galvanized iron pail, price £5, invented and manufactured by the exhibiters; a bundle of metallic string, price 10d. to 1s. 2d. per lb.; a board of syringes, price 9s. to 20s. each, improved and manufactured by the exhibiters; a mildew annihilator, price £1 15s., invented by Mr. Spray, of Brighton, and manufactured by the exhibiters; a small hand fire engine, price £3 3s., and a conservatory pump, or portable garden engine, price £1 7s. 6d., invented and manufactured by the exhibiters; a fire engine, for 4 or 6 men, price £24, improved and manufactured by the exhibiters; a swing water barrow, price £3 3s., invented and manufactured by the exhibiters; fountain designs, on board, price 5s. to 25s., according to pattern; a board of steam work, price £1 3s.; an alarm bell mounted in iron frame, price £5 15s.; a 24-inch bell, price £27; a set of sheep or cattle bells, with straps and buckles, price 12s. to 18s. a set; plumber's cocks, price 4s. to 20s. each; high-pressure cocks, price 4s. to 15s.; a half-inch India-rubber and canvass hose-pipe, with spreader, price £1 17s. 6d.; a straight branch pipe and registered spreader, price 7s.; an improved branch pipe, with internal cock, price 9s.; a taper branch pipe, with spreader, price, 20 inch, 8s. 6d.; a swing water barrow, price £3 3s., invented and manufactured by the exhibiters.

Edward Weir, of 296, Euston-road, London.

A perspective view of a farm cultivated by Halkett's patent system of guideway steam agriculture; a model of farm or market garden, laid down with rails for Halkett's patent guideway steam culture; a model of the locomotive cultivating platform used in the Halkett's system of guideway agriculture; a specimen of the brick and angle iron rail, for Halkett's patent guideway steam agriculture, price £20 per acre; a specimen of wooden sleeper rail, for Halkett's guideway steam agriculture, price from £8 to £10 per acre; photographic views of some of the operations performed by Halkett's guideway steam agriculture; and drawings and sketches of various parts of Halkett's system of guideway agriculture, all invented by P. A. Halkett, of the Wyndham Club, London; (new implement) an irrigator liquid manure pump, fire and garden engine, price £7 7s.; (new implement) a length of barn railway, railway truck and turntable, price of railway 3s. per yard run; a spirit draining level, price £1 10s.; and a workman's pendulum draining level, price 15s., all invented and manufactured by the exhibiter; a set of Barton's patent stable fittings for stalls, 6 feet wide, price £4 17s. 6d., invented and manufactured by James Barton, of 370, Oxford-street, London; and models, photographs, diagrams, and sketches.

John Wilson, of Wansford, Northamptonshire.

(New implement) a six-horse power steam traction and locomotive double-cylinder engine, price £275, invented by the exhibiter, and manufactured by John Law, of The Rutland Iron Works, Leicester.

John Windsor, of Oswestry, Salop.

Two corn dressing or winnowing machines, price £5 10s. and £6 10s.; and a clover and grass seed drill (took the prizes at Cork and Dublin in the years 1851 and 1852, and the £5 prize at Londonderry in 1858), price £3 10s., improved and manufactured by the exhibiter; two patent root pulpers (have taken prizes wherever exhibited since 1856, including the following places: Dublin, Rotherham, Norwich, and Evesham in that year; Newton Abbott, Swaffham, Helmsley, Bushbury, York, and Glasgow in 1857; and the Royal Agricultural Society's prize at Chester in 1858), price £5 5s. and £6 6s., invented and manufactured by E. H. Bentall, of Heybridge; two chaff cutting machines (took the Royal Agricultural Society's prize at Chester in 1858), price £3 15s. and £7, invented, improved, and manufactured by Richmond and Chandler, of Salford; a patent cultivator, grubber, or scarifier, price £9, invented, improved, and manufactured by Coleman, of Chelmsford; a washing machine, price £3 10s., invented and manufactured by Thomas Bradford, of Manchester; a new lawn-mowing machine, price £6 and upwards, invented, improved, and manufactured by Picksley, Sims, and Co., of Leigh; an elegant cottage verandah, price £6 10s.; two garden chairs, price £1 10s. and £2; a pair of single-seated reclining chairs, price £1 10s.; a neat iron sofa or garden seat, price £2 10s.; an easy arm chair, price £1 1s.; a pair of garden chairs, price £1 6s.; a wire arch for garden entrance, price £2; a wire arch for garden walk, price £1 1s.; an ornamental flower-pot stand, price £1; a three-step flower-pot stand, price £1 10s.; a double tray stand, price 14s.; an ornamental branch stand for nine pots, price £2 2s.; a flower stand, price £1 10s.; a round wire stand, price 12s.; an octagon wire stand, price 14s.; a pair of ornamental trainers for climbing plants, price £1; and a pair of camp stools, price 9s., all manufactured by the exhibiter.

Henry Ellis, of Holbeach, Lincolnshire.

(New implement) a revolving cultivator, land cleaner, and pulverizer, price £18 10s., invented and manufactured by the exhibiter.

William Newzam Nicholson, of Newark-upon-Trent, Nottinghamshire.

(New implement) a patent combined revolving harrow, weed extirpator, thistle cutter, manure spreader, and haymaker, price £19, and (new implement) a Nicholson's improved universal-jointed land-roller, price £11, invented, improved, and manufactured by the exhibiter; (new implement) a Nicholson's improved universal jointed Cambridge roller, price £12 12s., the roller part invented by W. Cambridge, of Bristol; two patent haymaking machines (obtained first prize at the Salisbury Show), price £15 and £16 16s.; a patent haymaking machine, for two horses abreast, price £21; two horse-rakes, price £7 and £8; a patent oilcake breaking machine, for beasts and sheep (was awarded the prize at Chester for the best machine for common cake), price £3 10s. and upwards; a corn winnowing, roughing, and blowing machine, price £12 12s.; two winnowing and corn dressing machines, price £10 and £9, invented, improved, and manufactured by the exhibiter; a patent rotary corn screen and riddle, price £5 10s. and upwards, invented by John Palmer, of Stockton, and improved and manufactured by the exhibiter; a 2½-horse power portable steam-engine, on four wheels, price £80; a three-and-a-half-horse power fixed steam engine, price £70;

a corn grinding mill, suitable for horse or steam power, price £30; a set of steaming pans, attached to steam engine, price with fittings £2 10s. each a chaff cutter, to be driven by the engine, price £12 12s.; a sample of concave iron mangers, price plain 16s., enamelled 8s. extra; a sample of Nicholson's continuous fencing, of wrought tubular iron, price, 3 feet 6 in. high, 3s. 3d. per yard and upwards; a cottage cooking apparatus (obtained a prize of £5 at York, £5 at Exeter, and silver medal at Lincoln), price, 36 inches wide, £1 18s. 6d. and upwards; a larger cooking grate, for farm purposes, price £4 10s.; a superior farm cooking grate, price £13; and a cosmopolitan cooking stove, price £6, all invented, improved, and manufactured by the exhibiter.

Edward Cockey and Sons, of Frome Selwood, Somersetshire.

An improved field roller, price 8*l.* and upwards; a clod crusher or land presser, price 12*l.* 10s.; a patent cheesemaking apparatus, obtained a silver medal at the Royal Agricultural Shows at Salisbury and Chester, price 35*l.*; a patent cheese tub, price 5*l.* and 12*l.*; a curd cutter, price 7s. 6d. and upwards, all invented and manufactured by the exhibiters, and a curd mill, price 1*l.* 7s. 6d. and upwards, improved and manufactured by the exhibiters; a milk strainer, price 7s. 6d., and a pair of tin milk pails, price 15s. the pair, manufactured by the exhibiters; an improved cheese press, price 6*l.* 10s.; a single cheese press, price 3*l.* 10s.; a double cheese press, price 6*l.* 5s., and a single cheese press, price 3*l.* 7s. 6d., improved and manufactured by the exhibiters; a pair of cheese vats, price 16s.; a force pump, price 4*l.*; a cast-iron pump, 2*l.* 2s. and upwards; a cast-iron cattle trough, price 1*l.* 5s.; a garden seat, price 1*l.* 1s.; a wrought-iron folding garden stool, price 4s. 6d. and upwards; a horse rake with iron teeth, price 6*l.* 17s. 6d, and an iron sack truck, price 15s., manufactured by the exhibiters; a set of iron whippletrees, price 12s. 6d., invented and manufactured by the exhibiters; a winnowing machine, price 8*l.* 10s., invented by William Sawney, of Beverley; a carriage lifting jack, price 15s.; a cast stall, post, and rails for stables, price 1*l.* 15s.; a cast, iron manger, rack, and gruel pot, price 1*l.* 15s.; a cast-iron gutter for stable, price 5s. 6d. per yard; a cast-iron trap for stable gutter, price 7s.; a combined oat and bean mill, price 5*l.*; a wrought-iron field gate, price 1*l.*; a pair of cast-iron gate posts, price 10s., and a wrought-iron field gate, price 1*l.* 10s., manufactured by the exhibiters; a pair of cast-iron gate posts, price 1*l.*; an improved double tile machine, price 25*l.*, and an improved liquid manure or water cart, price 16*l.*, improved and manufactured by the exhibiters; a set of iron whippletrees, price 12s. 6d., invented and manufactured by the exhibiters; an iron sack truck, price 12s. 6d., manufactured by the exhibiters.

John Nicks, of Leeh Wooton, near Warwick.

Six sizes of a field gate, with hangings and fastenings, price 1*l.* 1s. to 1*l.* 4s., manufactured by the exhibiters.

John Palmer, of Hampton-on-the-Hill, near Warwick.

Eighteen drain pipes; prices, 6 pipes of 2-inch bore 19s., 6 ditto of 4-inch bore 40s., 6 ditto of 6 inch bore 5*l.* 15s., per 1,000, manufactured by the exhibiter.

Henry J. Sheldon, of Brailes, near Shipston-on-Stour, Warwickshire.

A set of 6 draining pipes of 6 inches bore, price 12*l.* per 1,000; a set of 6 draining pipes of 4 inches bore, price 2*l.* 2s. per 1,000, and a set of 6 draining pipes of 2 inches bore, price 1*l.* 2s. per 1,000, all manufactured by a machine the property of the exhibiter.

Thomas West, of Burton-upon-Trent, Staffordshire.

Several sizes of a curd mill, price 1*l.* 5s. and upwards, invented, improved, and manufactured by the exhibiter.

John William Scriven, of Throstle-nest, near Otley, Yorkshire.

A farm gate, price 1*l.* 2s., invented by the exhibiter, and manufactured by Charles Smith, of Aberford.

P. R. Jackson, of Blackbrook, near Gresmont, Herefordshire.

(New implement) a farm gate, price 1*l.* 4s., improved by the exhibiter.

Charles Wyatt, of Cubbington, near Leamington, Warwickshire.

An oak farm gate, price 1*l.* 3s., manufactured by the exhibiter.

John Beasley, of Chapel Brampton, near Northampton.

A field gate, price 1*l.* 4s., invented by the exhibiter, and manufactured by Edwin Green.

J. T. B. Porter and Co., of Lincoln.

A national coal gas apparatus, price 47*l.* 10s., exclusive of tank for holder, invented by George Bower, of St. Neot's, and manufactured by the exhibiters.

Humphrey Chamberlain, of Kempsey, near Worcester.

(New implement) a patent dry clay brick-making machine, price, including patent rights, £1,000; (new implement) a dry clay mill, price £200; and a patent brick-making machine, price £250, invented and manufactured by Messrs. Bradley and Craven, of Wakefield; a patent brick and tile-making machine, price £200, invented and manufactured by Messrs. Wright and Green, of Rugby; a model of a patent dry-clay brick-making machine, price £1,000, invented by Messrs. Hersey and Walsh, of New York, and manufactured by the exhibiters; an eight-horse power fixed steam engine, price £200, invented and manufactured by Messrs. Bradley and Craven, of Wakefield.

Thomas Tertius Chillingworth, of West Bromwich, near Birmingham, Staffordshire.

(New implement) a six-horse power horizontal expansive steam engine, price 72*l.*; and (new implement) a three-horse power vertical expansive steam engine, price 40*l.*, invented and manufactured by the exhibiter; a five-horse power portable steam engine, price 169*l.*, invented by the exhibiter, improved and manufactured by William Middleton, of Birmingham.

W. H. and George Dawes, of the Milton and Elsecar Iron Works, near Barnsley, Yorkshire.

(New implement) a patent atmospheric hammer, price, not including base plate and anvil block, 100*l.*; a model of a patent vacuum forge hammer; and a model of a patent vertical tilt hammer, all invented by Charles John Carr, of Hoyland, near Barnsley, and manufactured by the exhibiters.

Francis Morton, of James-street, Liverpool, Lancashire.

A removable shed for hay, or general farm purposes, constructed of galvanized iron, with galvanized iron pillars and gutters, price 35*l.*, invented and manufactured by the exhibiter; a fire resisting self-supporting galvanized iron roof, price 18*l.* 10s., manufactured by the exhibiter; Francis Morton's patent wire cable strand fence, price, fixing, 2s. 6d.; exclusive of fixing, 2s 3d. per yard, invented, improved, and manufactured by the exhibiter; (new implement) Francis Morton's patent strained iron fence, for young horses, heavy bullocks, &c., price, fixed, 1s. 11d.; not fixed, 1s. 8d. per yard, invented and manufactured by the exhibiter; an improved iron field gate, price 1*l.* 12s.; an ornamental iron wicket gate, with cast-iron pillars, price 2*l.* 5s.; a model of improved copper rope lightning conductor, and a model of fire-proof and vermin-proof iron flooring, manufactured by the exhibiter.

Emile Pavy, à la Ferme de Girardet, près Canton de Neury-roi, Indre-et-Loire, France.

Grenier conservateur (cilo or granary), prix 3,000, inventé par moi, proprietaire cultivateur, à la Ferme de Girardet, France, perfectionné par moi, et fabriqué par Renaud et Lotz, de Nantes, France, sur le refus de quatre constructeurs Anglais, de le faire à ma frais et pour mon compte.

Alfred Sparke, of Norwich, Norfolk.

A seven-horse power portable steam engine, fitted with Lowmoor fire box, price £220; a three-horse power portable steam engine, with cast-steel boiler and fire box, price £70; a patent vertical saw frame, to cut two deals at one time, fitted with steam cylinder and stop valves, price £120, a patent circular-saw bench, fitted with 54-inch saw, price £75; and a patent vertical-saw frame, for cutting felloes, price £20, invented, improved, and manufactured by the exhibiter.

Thomas Gibbs and Co., the Seedsmen to the Royal Agricultural Society of England, of Half-Moon-street, Piccadilly, London.

Dried specimens of permanent grasses, containing all the most useful and valuable varieties for laying down land to permanent meadows and pastures; specimens of English wheats, barleys, oats, &c., &c., in the ear, including all the varieties in general cultivation in the United Kingdom; dried specimens of foreign wheats, barleys, oats, &c., in the ear, and of English varieties grown from seeds imported from France after the kinds had been acclimatized there for some years; samples of various permanent and other grass seeds, including mixtures for laying down land to permanent grass for the following purposes: Meadows and pastures, parks and field lawns, irrigation of water meadows, upland sheep walks, cemeteries and church-yards, garden lawns and grass plots, &c.; renovating mixture for improving old swards; various grass seeds, separate; Italian and other rye grasses; fescues, poas, &c., &c.—altogether several hundred varieties; general agricultural and other seeds, including carrots, parsnips, mangel wurzels, swedes, hybrids, and other turnips, clovers, sainfoin, lucerne, peas, beans, and other agricultural seeds; and roots of yellow or orange globe, long red, and other mangel wurzels.

George Bruce, of 54, Nelson-street, Liverpool, Lancashire.

Patent black Japan varnish, price, first quality 5s. per gallon, second 2s.; blue coloured composition, price 15s. 6d. per gallon, invented and manufactured by the exhibiter; red coloured composition, price, first quality 15s. 6d. per gallon, second 5s. 6d.; green coloured composition, price 15s. 6d. per gallon; stone coloured composition, price 15s. 6d. per gallon; transparent varnish, price 8s. per gallon; and white colourless varnish, price 15s. per gallon, manufactured by the exhibiter.

Charles Lambert, of Sunk Island, near Ottringham, Yorkshire.

(New implement) a patent plough drill, price £1 11s. 6d., invented by the exhibiter, and manufactured by James Johnson, of Ottringham, Yorkshire, and Messrs. Hornby and Sons, of Grantham, Lincolnshire; (new implement) a set of patent metal horse collars, price £1 1s., best silver-plated £4 10s., invented by the exhibiter, and manufactured by Messrs. John Crowley and Co., of Sheffield, Yorkshire.

Joseph Thorley, of 77, Newgate-street, London.

A case of Thorley's food for cattle, price £2 16s., invented and manufactured by the exhibiter.

Peter Lawson and Son, the Queen's Seedsmen, &c., 1, George IV. Bridge, Edinburgh, and 27, Great George-street, Westminster, S.W.

All the most important varieties of wheat, oats, barley, rye, and other kinds of cereal grain (in the straw and in the sheaf); all kinds of forage plants cultivated in the United Kingdom as food for the domesticated animals; all the principal varieties of mangolds, turnips, carrots, &c; hardy, coniferous, and other trees, adapted for shelter or ornament; smaller instruments used in the farm, the forest, and the garden, viz.: Assortment of axes, from 1s. 8d. to 7s. 6d.; fumigators, 4s. 6d. and 15s. 6d.; brooms, 4s. to 5s.; pruning chisels, 1s. to 4s.; dibbles, 1s. 6d.; forks, 1s. to 7s. 6d.; fruit and flower gatherers, 1s., 10s. 6d., and 22s. 6d.; garden reels, 3s. 10d. and 4s. 2d.; gooseberry pruning knives, 2s. 3d. and 3s.; nailing hammers, 1s. 6d. to 5s. 3d.; hand bills, 2s. 3d. to 6s.; hand glass frames, 5s. 6d. to 8s.; switching bills, 3s. 6d. to 5s.; hedge bills, 4s. 6d. to 7s.; bee-hives, 1s. to 1s. 9d.; draw hoes, 6d. to 1s. 8d.; Dutch hoes, 9d. to 3s.; spud hooks, 9d. to 2s. 6d.; budding, pruning, and other knives, 1s. to 14s.; garden rakes, 8d. to 6s. 6d.; riddles, 2s. 6d. to 3s. 6d.; sowing basket, 11s.; saws, various, 2s. 6d. to 7s.; garden scissors, 1s. 6d. to 6s. 9d.; and a model reaping machine.

John Robinson, of Nuneaton, Warwickshire.

An assortment of draining pipes, prices, 2in. £1, 4in. £2, 6in. £3, manufactured by the exhibiter.

Isaac Wright, of Great Bentley, near Colchester, Essex.

Grass, grass seeds, agricultural roots, and agricultural seeds.

Henry Bridges, of 406, Oxford-street, London, W.

A large variety (new patterns) of improved butter prints, and other small articles for dairy use, price 6d. to 10s. each, invented and manufactured by the exhibiter.

Daniel Lancaster Banks, of 3, Kennington-row, Kennington Park, London.

(New implement) a model of Banks' combination system of steam agriculture, invented and manufactured by the exhibiter.

George H. Bolton and Co., of Warrington, Lancashire.

The Palatine invigorating horse food, price, box containing 120 feeds in packets, 19s.; fattening food, price, 120 feeds in packets, 14s. 9d.; milk-producing food for cows, price, 120 feeds in packets, 14s. 9d.; renovator for aged horses, price, 240 feeds in packets, £1 17s.; the chemical materials of the Palatine invigorating horse food, price, bottles containing sufficient to be given with 120 feeds, 15s.; the chemical materials of the Palatine fattening food, price, bottles containing sufficient to be given with 120 feeds, 11s.; the chemical materials of the Palatine milk-producing food, price, bottles containing sufficient to be given with 120 feeds, 11s.; the chemical materials of the Palatine renovator for aged horses, &c., price, bottles containing sufficient to be given with 240 feeds, £1 8s.; the chemical bases of invigorating human food, price, boxes containing 240 parts, 5s.; and the chemical bases of flesh-forming human food, price, boxes containing 240 parts, 5s.—invented and manufactured by the exhibiters.

George Spill and Co., of Old Farm House, Stepney Green, Middlesex.

A double-texture India-rubber waterproof rick cover, complete, price 3s. per square yard; an oiled canvas rick cover, price 1s. 9d. per square yard; an oiled canvas cart cover, price 1s. 9d. per square yard; a double-texture wool and India-rubber horse-loin cloth, price 9s. 6d.; a double texture cotton and rubber-lined horse-loin cloth, price 10s. 6d.; a double texture cotton and rubber long horse cloth, price 18s. 6d.; an oiled waterproof horse-loin cloth, price 6s. 10d.; and an oiled canvas waterproof horse-loin cloth, price 9s. 6d.—manufactured by the exhibiters; (new production) a patent leather ventilating horse cloth, price £1 0s. 5d.; (new production) a patent leather gig apron, price 10s. 6d. and upwards; (new invention) a patent leather carriage knee boot, price, average size, £1 6s. 6d.; (new invention) a patent leather greyhound cover, price 6s. 10d.; (new invention) a patent leather gun cover, price 3s. 9d.; (new invention) a patent leather game bag, price 6s.; (new invention) a patent leather portable bucket, price 7s. 6d.; (new invention) a patent leather driving cape, price £1 2s. 6d.; (new invention) a pair of patent leather riding leggings, with springs, price 8s.; (new invention) a pair of patent leather riding leggings, with long springs, price 13s. 6d.; (new invention) a pair of patent leather trowsers, price 15s. 6d.; (new invention) a pair of patent leather fishing stockings, price 8s.; (new production) a patent leather shooting or fishing hat, price 4s.; and (new production) a ploughman's waterproof cape, price 3s. 6d.—invented and manufactured by the exhibiters; a ploughman's waterproof frock, price 5s.; a ploughman's waterproof leggings, price 1s. 10d.; a ploughman's waterproof hat, price 1s. 3d.; Greene's metallic oxide paint—copper colour price 8s., black colour 7s. 6d., bronze colour 8s. per gallon; improved paint, mixed in a liquid state, ready for use, price 6s. per gallon, and upwards; torch oil, price 6d. per gallon; liquid silicate of potash, price 6d. per gallon; cement wash, price 1s. per gallon; engine oil, price 4s. per gallon; pure refined colza oil, price 4s. per gallon; improved white cart grease, price 8s. 6d. per cwt.; improved yellow cart grease, price 11s. per cwt.; improved brown machine grease, price 15s. per cwt.; superior phosphate of lime as a manure, price £6 10s. per ton; blood manure, price £5 5s. per ton; wheat manure, price £5 5s. per ton—manufactured by the exhibiters.

James Tree, of 22, Charlotte-street, Blackfriars-road, Surrey.

A cattle gauge and key to the weighing machine, price 7s. 6d. to 16s. 6d. each; a cattle gauge, adapted for any market, price 8s. 6d. to 25s. each; a farmer's slide rule and cattle gauge, price 12s. 6d., 15s., and 25s. each; and a circular cattle gauge, price £1 5s. each—invented by John Ewart, and manufactured by the exhibiter; a telescope draining level, price £5 10s., invented by James Tree and Co., and manufactured by the exhibiter; a beam draining level, price £4, invented by Wm. Bullock Webster, of Neath, and manufactured by the exhibiter; a horse standard or measure, price 16s., invented by James Tree and Co., and manufactured by the exhibiter; a cottage or agricultural barometer, price 11s. 6d. each, improved and manufactured by L. Casella, of London; a garden minimum thermometer, price 4s. 6d. each, and upwards; and a garden microscope, price £1 1s.—improved and manufactured by L. Casella.

At a Monthly Council held Wednesday, August 3, present—the Right Hon. Lord Walsingham, President, in the chair; Earl of Powis, Lord Southampton, Sir J. V. Shelley, Bart., M.P., Hon. Col. Hood, Hon. A. Vernon, Mr. Amos, Mr. Raymond Barker, Mr. Barnett, Mr. Hodgson Barrow, M.P., Mr. Bramston, M.P., Mr. Brandreth, Col. Challoner, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Lawes, Mr. Milward, Mr. Robert Smith, Mr. Bankes Stanhope, M.P., Col. Towneley, Professor Voelcker, Mr. Jonas Webb, Mr. Wilson (of Stowlangtoft), and Professor Wilson, the Earl of Dartmouth was elected a Governor of the Society.

The following new members were elected :—

Bell, —, Gillingham, Dorset
Bentley, Henry, Woodlesford, Leeds
Bennett, James, Ingestone, Ross
Boulford, James, Hordley Farm, Woodstock
Brasnett, John, Hilboro' Lodge, Brandon, Norfolk
Browning, Arthur Henry, Heath Lodge, Iver
Burneston, Richard, Greenlands, Henley-on-Thames
Horton, W. T., Emlesay-Kirk, Skipton
Lambe, —, Church Bank, Boden, Manchester
Litchfield, John, Epperstone, Nottingham
Puleston, Rev. Theophilus, Worthenbury Rectory, Flintshire
Ralston, James, Danesfield, Great Marlow
Roberts, Richard, Stanage, Brompton Bryan.
Walker, John, Nottingham
Watson, John, Sherburn Castle, Tetsworth

The usual monthly report of the Finance Committee was received, by which it appeared that the current cash balance in the hands of the bankers was £2,464 18s. 2d. The report of the House Committee was received and adopted.

A deputation having attended from Canterbury relative to the site proposed for the Society's show in 1860, it was resolved, on the motion of Colonel Challoner, seconded by Sir John Shelley, "That the deputation be informed that the whole of the guarantees for the lower sites (No. 2, called Hale's Place), for the show-yard and trial-yard, must be guaranteed by the Corporate Seal of Canterbury during the present month, subject to Mr. Fisher Hobbs and Mr. Brandreth Gibbs visiting the above sites, and deciding that there is a sufficient quantity of ground adapted to the requirements of the Society, and that the said guarantees should include the completion of the sidings, suitable to the wants of the Society, previous to the 1st of May, 1860."

Reports were received from the stewards of live stock at the Warwick meeting.

On the motion of Mr. Barnett, seconded by Mr. Milward, the thanks of the Council were voted to Lord Leigh and the county magistrates for the use of the judges' lodgings at Warwick.

The following were elected as the new Finance Committee: Mr. Barnett, the Hon. Colonel Hood, Mr. Fisher Hobbs, Mr. Milward, and Mr. Bramston.

On the motion of Mr. Wilson, the resignation of Mr. Raymond Barker as a Vice-President was withdrawn.

A communication transmitted from the Foreign Office by order of Lord John Russell, together with copies of despatches relative to guano deposits on Jarvis Island, was laid before the Council. From a despatch from Captain Montresor, of H.M.S. Calypso, to Rear-Admiral Baynes, it appears that on Jarvis Island, situated in lat. 0º 22' S., long. 159º 50' W., deposits of guano exist to an extent estimated (by measurement) at 1,000,000 tons. Of this, 6,000 tons have been exported since the American Guano Company of New York (to whom it belongs) first commenced regular shipments in May, 1858. The shipments already made have been exclusively in American vessels. The deposit is from 4 feet to 10 inches in depth, and it contains a maximum of 80 per cent. of phosphate of lime, but little or no ammonia. It appears that there is also a deposit on Fannaig's Island, but that none of this has been exported, and a further deposit is said to exist on Johnson's Island.

Communications were received from Mr. Smith, of Woolston, and the Hon. Secretary was instructed as to the reply to be given to the one of these letters which was addressed directly to the Council.

Other communications and matters of detail were laid before the Council, and instructions given relative thereto.

The Council granted the usual vacation to the Society's clerks during the autumn recess, subject to the exact dates being arranged by the Hon. Secretary.

The Council then adjourned to its Monthly Meeting in November.

BATH AND WEST OF ENGLAND SOCIETY

FOR THE ENCOURAGEMENT OF AGRICULTURE, THE ARTS, MANUFACTURES, AND COMMERCE.

A Monthly Council of this Society was held on Saturday, July 30, at Waghorn's Hotel, Taunton, under the presidency of the Right Hon. Lord Portman, in the absence of the President (Lord Rivers). There were present: Sir John Duntze, Bart.; the Hon. W. W. Addington; Messrs. C. Bush, H. G. Moysay, R. Badcock, John Gray Jonathan Gray, R. N. Granville, R. K. M. King, J. Fry, J. D. Hancock, R. H. Clarke, D. Adair, J. W. Walrond, E. S. Drewe, J. S. Pitts, G. S. Poole, J. Widdicombe, M. Farrant, G. Langdon, R. Dymond, W. E. Gillett, J. Gould, E. Archer, &c.

Arts Department.—A report of a very gratifying character was brought up from the Arts Department Committee, showing how exceedingly successful the extension of the society's exhibition to arts and manufactures had been at the recent meeting at Barnstaple. The plant and material acquired in this department by a special fund contributed for the purpose, were duly assigned to the society, and the council, encouraged by the success of the experiment, ordered that a similar exhibition should take place at the Dorchester meeting, next year.

Local Report on the Barnstaple Meeting.—Mr. Acland, referring to the great success which had attended the Society's visit to Barnstaple, and the spirited way in which they were met by the Local Committee, suggested that asassistance be given by the Council to the Barnstaple Local Committee towards the publication of the Report proposed to be given to the subscribers to the local fund. The subject was referred to the *Journal* committe. The council unanimously elected H. A. F. Luttrell, Esq., of Badgworth Court, a member of the council for the Eastern Division, in the room of Mr. Floyer, resigned.

Committees.—The following committees were appointed for duties in connection with the Dorchester meeting: *Stock*

Prize Sheet Committee.—Messrs. C. Gordon, T. Hussey, W. Wippell, John Gray, J. W. King, J. Widdicombe, H. G. Moysey, R. Smith, and J. P. Pitts. *Implement Regulation Committee.*—Messrs. J. E. Knollys, J. Gray, Jonathan Gray, Belfield, Bush, Walrond, H. G. Moysey, and Pitman.

NEW MEMBERS. — The following new members were elected, viz.: The Earl of Lovelace, Ashley Court; Messrs. W. A. Sanford, Nynehead Court; W. Norseworthy, Slough; T. B. Batten, Halberton; R. Marker, Uffenline; T. Davis, Warminster; Philip Symons, Washbourne.

THE ROYAL AGRICULTURAL SOCIETY OF IRELAND.

MEETING AT DUNDALK.

The great gatherings of the year now fairly crowd upon us. With just one week's grace after Warwick, and we have the Royal Irish and the Lincolnshire County alike inviting our attention. In but two or three days more the Highland and Yorkshire Societies again contemporaneously court the public favour, and exhibitors become thoroughly embarrassed as to "what is the best to do." Some few no doubt, like Mr. Douglas and his renowned "company," go the round of the three national exhibitions, crossing from Warwick to Dundalk, and from Dundalk to Edinburgh. Others will yield more readily to local influences, and not encounter the dangers of the sea. For such, however, as had predetermined to take the Royal route, nothing could come better, either in time or place, than this meeting at Dundalk. It is very available in the way of situation to get in and out of; and although perhaps a little more "law" might have been acceptable, still, with weather permitting, Scotland should be reached in very good time. We find accordingly such firms as the Howards, the Hornsbys, Clayton and Shuttleworth, and Richmond and Chandler, all going on. But the Athelstaneford stock stands almost alone amongst the cattle that will visit the three shows. A fellow-countryman, Mr. Todd, of Elphinstone, is we believe the only other exhibitor who has entered, and so far successfully competed, for the honours of the United Kingdoms of England and Ireland.

Still, if our own home breeders do not themselves much relish this crossing and re-crossing of the channel, it by no means follows that they were altogether unrepresented here. In fact, the Dundalk Show was far more a reflection of that at Warwick than the names merely of Mr. Douglas, Mr. Eastwood, and Mr. Todd would go to make it. And this was especially the case in the one strong feature of the meeting—the show of sheep. There never was such an entry of sheep in Ireland; and sheep, we are continually told, is just what Ireland wants above everything else. So sure as Mr. Torr goes over as a judge, and so sure as he makes a speech at the dinner, which is as inevitable a consequence, so certainly does he tell his audience to look to their breeds of sheep. On this occasion Mr. Torr unfortunately was not present; but Mr. Beale Browne was, and in due course made the speech for him. It may be curious to see what effect this advice from a famous breeder of Leicesters or Cotswolds will have on those who hear it. *Something* has unquestionably been done already. A good example is at any rate not needed, while we can turn to such men in Ireland as Mr. Owen, of Blessinton; Mr. Thunder, of Navan; Mr. Garde, of Ballinacurra, and Mr. Roberts, of Strokestown—all these gentlemen supported the Society at Dundalk, and all, it will be seen, with more or less success. But such triumphs are susceptible of some test. Are the Irish sheep-breeders just satisfied with beating each other with what they have, or do they take some pains to really improve their flocks? Let us try this with the Leicesters—as usual, by far the finest class of all. Mr. Thunder then takes the first prize for shearling rams with what was declared to be a very good one. And so he ought to be, for he was bred by Mr. Sanday; he gained the second prize at Warwick, and he was taken by Mr. Thunder for ninety guineas. The second prize shearling—also the property of Mr. Thunder—was bred by Mr. Cresswell. In the all-aged class of Leicester rams "the proof" is perhaps yet more noticeable. When at Warwick, Mr. Owen hired of Mr. Pawlett his second-prize ram, and when he brought him home to Blessinton, the shepherd maintained they had a better sheep of their own: and this has been confirmed by the judges at Dundalk. The prize ram is one of Mr. Owen's own flock, while that from Beestone is not mentioned. But even judges are somewhat capricious, and their decrees at times liable to be overset. Such has been particularly the case with this Warwick ram. At the Show there Mr. Marris bought an uncommended animal of Mr. Spencer; and having done so, told Mr. Thunder not to be surprised if he beat the Pawlett ram at Dundalk. And he has beaten him; Mr. Marris taking the second prize, and selling his sheep again for a very good price—of course to stop in the country. The Warwick ram's wool was thought to be much against him, or otherwise he is well formed, and good enough to look at. But wool is just what they want in Ireland. Then Mr. Robert's prize ewes in both sections all come from Colonel Inge; the aged pen being made up of some very fine useful ewes, with one especially good amongst them. Although the Colonel has himself not been so long famous for his flock, he in turn goes to head-quarters for what he wants. He gets not only his rams and his ewes, but even his shepherds from Holme Pierrepont.

But this recommendation to look to your breeds of sheep, does not expend its force on the Leicesters. In the next division of "other long-woolled sheep," the first and second prizes for shearlings are taken by Captain Carroll, of Tulla, with two Cotswolds that occupied precisely the same positions at Warwick, and that were purchased of Mr. Garne at a very high price. Mr. Beale Browne carries on the argument, but his sheep are half naturalized by now. His prize ram, for instance, has never left the country since he took equally high honours at the Dublin Spring show. But Dr. Roche ran him very close now, and the Andoversford ewes were to be preferred. They were really excellent for a certain combination of properties—wool, mutton, and symmetry—and will be much missed at these meetings. Mr. Browne announced in his speech at the dinner that he is about to retire from the " the stormy arena" of public competition, and that his flock of Cotswolds will be brought to the hammer early in September. The breed has not been much fancied in Ireland, but he has persevered very gamely with them. He entered and showed at Dundalk no less than nine rams and three pens of ewes —in fact, just about half the class.

Neither do the Southdowns " take," and the council very judiciously resolved upon one general entry of " Downs." They so made up a very good class of Shropshire and Southdowns, Mr. Hamilton's ram, if we mistake not, having also some previous character of his own, in England. The Cheviots and blackfaces were entirely in the hands of two or three exhibitors, whose titles are duly proclaimed on the prize list. Although of no remarkable excellence, they did not detract from the merits of a sheep show that the society and the country may well be proud of. It says everything for the energy and spirit of her agriculturists.

There is another kind of stock that speaks perhaps yet more highly for what is being done here. In fact, the celebrity of the Irish Shorthorns is known worldwide by this time, and very deservedly so too. But the show, as that in the summer usually does, drew a good deal of its strength from beyond the green isle itself; and some of the good things will not be forwarded to Irish addresses. There was, indeed, a well-grounded apprehension that the Purcell Challenge Cup would for the second time be carried clean away. Mr. Douglas had already won it two years in succession, and he entered for the third trial in great force, with Venus de Medicis, Old Ringlet, Rose of Sharon, the Maid of Athelstane, the Lady of Athelstane, and others. But the Douglas this season would appear " doomed to be foremost never to be first." He could get no further than a good second in anything he tried for at Dundalk, and so, of course, all hopes of the cup " for best animal in the show" were at once destroyed. We fancy his " point" was the well-known white heifer, Venus; and all Ireland certainly could not beat her; but, unfortunately, all England could. Mr. Eastwood sent over the second prize Chester cow Rosette, already distinguished on this side of the water, and the judges pronounced her not only the best of the cows, but the best animal brought before them. But judges are beginning to look at these matters in a new light. Unquestionably the most handsome, or rather the prettiest thing in the show was the appropriately-named Venus. It would be almost impossible to beat her for beauty of form, or the extraordinary evenness with which she has fed. But she has hardly grown at all since we last saw her, and although five months older, does not compare as a roomy great cow with Rosette. The latter is not quite perfect, perhaps; but she has many famous points, and above all has had a live calf, a grand consideration in any estimate of show stock. Mr. Eastwood matched her with a yearling heifer—the only two he sent over—that is a perfect marvel of early maturity. For her age—a year and some months—there never was such substance and development, combined with fine quality, symmetry, and generally good looks. Of course she had the first prize of her class, although this was a very strong as well as numerous one, by far the best section of the Shorthorns. The authorities dealt freely in commendations and high commendations, and the Lancashire lead was well backed by such home-breeders as Captain Ball, Mr. Christie, Mr. Lee Norman, and others. In the adjoining class of Two-year-old Heifers, a somewhat small but good one, Ould Ireland went more directly to the fore. The Maid of Athelstane, that we spoke so well of at Warwick, was here again but a close second, Captain Ball defeating her with one of his famous Pea-hen tribe—a long, even lady-like looking heifer, very good before, but with scarcely " spring" enough in her rib. There was naturally enough some discussion as to which of the two should really be first or second, but Captain Ball by no means depended on this entry alone. In fact, he was in extraordinary strength, and more than fulfilled the promise he made at Londonderry last year. As will be found, he took not only the first prize for two-years-old, but the second for yearlings, and the Waterford Challenge Cup for the best lot of three young animals. Mr. Douglas, who won this last season, was again in competition, but Captain Ball's trio when had out side by side made a most attractive group, uniform in their character, high in their quality, and very forward in their growth and development. Good as the Captain's herd is and has been, he never held such a position as he does now, while the Dundalk Show is the best of all possible advertisements for his sale, to come off early in October, under the auspices of Mr. Strafford. In the aged cows Scotland had all the honours to herself, Mr. Todd ranking first with his Warwick prize, and Mr. Douglas second with the Rose of Sharon. The latter also sent Ringlet, but her day is palpably gone; and she looked altogether out of sorts, ragged, patchy, and jaded.

However generally good the yearling heifers may be recorded, they were very nicely balanced by the bulls of the same age. It is rarely that we have seen so *many* indifferent animals in one class. Small in size, and altogether mean in appearance, the majority of them did little to sustain the character of the Irish shorthorn, so observable in some of the other sections. This is the more remarkable, as, if we recollect aright, the Dublin Spring Show was thought to be more than commonly commendable, both for the number and goodness of the yearling bulls. The two more matured divisions were better, but still there was nothing here on a par with many of the females. Nevertheless, the Gold Medal animal of the Londonderry Meeting was amongst them —Sir Colin, now the property of Mr. Barcroft. He again took the first prize of his lot, but was beaten for the medal by a beast he had the precedence of last year. This was Mr. Todd's white bull Young Heir-at-law, which again carries off the premier honour in the All-aged division. He has certainly thickened a good deal since his last appearance, but we question whether he can ever rank as so fashionable a bull as his younger rival. It must have been a very near thing with three for the medal—Heir-at-law, Sir Colin, and Mr. Barnes' Dr. M'Hale. The last-named of these every now and then turns out something very catching to look at, and nice to handle. We confess to have been rather puzzled at first on recognising Mr. Todd's bull again in successful competition; but it seems the Society have lately " eased" one of their conditions, and aged male animals, whether previous winners or not, can now enter again and again at the meetings. For our own part, we make no kind of cavil of this, but it somewhat spoilt the opening point of the Lord-Lieutenant's speech.

The same thing occurred in the horse show. Lord

Dufferin sent last year what we were bold enough to term "one of the best Clydesdales ever known in Ireland," and of course he took the prize. "Sir William Wallace," as he is called, was entered again at Dundalk, and with an equally successful result. He is now the property of the Messrs. Moore. But the display of agricultural horses was by no means an imposing one. There were two or three more smart Clydes, and Mr. Prendergast had a clean, handsome Suffolk, bought of Mr. Crisp, that might fairly have had some notice. The first-prize cart mare has much improved since we last saw her, and does Sir William Heygate's management every credit; but some of the young stock were deplorably bad, and the judges very properly refused to award some of the premiums. Our Irish friends have still much to learn about the make, shape, and keep, of a cart horse. Neither were the thorough-bred horses anything like up to the average of what they lately have been. Only four were sent, and only one of the two prizes given The best of these, a brown horse by Colwick, was much fancied, and has the repute of getting capital stock. He is a horse of great power and substance, with a famous forehand and good action; but he has rather coarse, vulgar quarters, and does not, to look at, give one the idea of being quite as well-bred as he really is. Had Caledon "come again," he must have had a stronger hold on the Croker Cup.

The other breeds, honestly, do not flourish in Ireland, saving the Ayrshires, which included some very nice milking cows, the prize one with a rare udder. Sir William Heygate's were even better in mere appearance; but placing dairy stock must be a ticklish task under the most favourable of circumstances. The few Devon cows and heifers showed more purity than the bulls, which seem to be growing coarse; and Mr. Hewer, all the way from Hereford, answered for the virtues of his native breed. He did everything there was done for the class; but neighbours who go to Hereford fair would have opened their eyes at what some people in Ireland appear to imagine is good enough for a prize Hereford beast. Lord Talbot de Malahide showed some very superior black polled cattle, one or two of which are to be further tested at Edinburgh next week. There were, in all, one West Highland bull and four West Highland cows; not many more kerries; and *four* extra prizes for tenant-farmers' cattle, and *two* animals entered to compete for them. Surely it is time, or for a time, such premiums should be struck out of the list. They do no possible good. In fact, the only effect must be injurious, if such cattle as were here distinguished are to be known hereafter as prize animals of the Royal Agricultural Society of Ireland.

The show of Berkshire pigs was not so strong as we have occasionally seen it, but it was still one of almost general merit; while the best of the white varieties came "special" from England. Lord Clermont, however, and some other gentlemen, are evidently cultivating the Cumberland pig with great care; and bacon, like beef and mutton, becomes another of the landmarks of our Agricultural Improvement Association.

There was a very moderate collection of poultry, and a very small one of butter and cheese; the butter to be made in "imitation" of the English.

The main interest of the Meeting ceases here. The Irish Society, convinced by the arguments of our great English firms, offers no prizes for implements, save only a Challenge Cup, that it cannot well get out of. Mr. Gray, of Uddingstone, near Glasgow, promises to relieve the Council of even this difficulty, as he has now won the Cup two years in succession. But both at Dundalk and Londonderry, Mr. Gray is, as it were, on his own ground. He has long done a great trade in the North of Ireland, particularly with his plough, and so would naturally under any circumstance plume himself upon "the collection" he could show to his friends. There was altogether a very good display of implements, and one, which if wanting some of the grand features of our English Exhibition, had the perhaps better recommendation of being adapted to the requirements of the country—small steam engines, and good useful implements offered at the lowest possible prices.

Nevertheless, business was "bad." We did not encounter a man that was satisfied with what he had done. One of our most famous makers confessed to having received "two one-pound notes" and no more. The prize or non-prize system may have nothing to do with this. We simply record the fact. There was little that we could hear of, in the way of novelty. Burgess and Key's and Wood's mowing machines were in work, and each with its partizans. The Howards and Hornsbys sent ploughs; Clayton and Shuttleworth, the Ransomes, and Garretts, steam engines and thrashing machines; Richmond and Chandler worked their chaff-cutters and corn-crushers, and the following English houses depended on the previous fame and character of inventions with which their names will be readily associated:—Turner, of Ipswich; Coleman, of Chelmsford; Woods, of Stowmarket; Barrett, Exall and Andrewes; Humphries, of Pershore; Smith and Ashby; Picksley and Sims; Hill and Smith; Haywood; Samuelson; Boby, from Bury; and others. There were also a number of Irish and a few Scotch implement firms with stands, but in the absence of any authorized trials of their entries it would be but tedious to repeat the catalogue we are already running through our columns.

"The Banquet" must speak for itself. But it was again overdone in this way. The Lord-Lieutenant got up a very good summary of the present condition of Ireland, although it was more of a lecture than an after-dinner speech; and the company began to tire of noble Lords, who had nearly all the fatal failing of not knowing when to stop. As a consequence, the really practical men, put very low on the list, were forced into undue brevity. Mr. Thurnall hardly more than acknowledged the compliment to the Judges, while Captain Ball, "the successful exhibitor," did dwell a little on the over-feeding of stock, a matter to which we may hereafter refer. The Report and Prize-list will tell the rest of the story; but the latter is scarcely as official as we could wish. The want of such a list issued under authority is indeed the weak place in an otherwise now very well conducted meeting. We know of no other association of anything like equal calibre but that has one. As in the Highland Society, this might be out in very good time for distribution at the dinner. We believe ours to be mainly correct, but that it may yet be amended by the mention of medals awarded to the breeders of the three best animals—one to Mr. Stewart, of Southwick, for Young Heir-at-Law, the best bull; another to Mr. Wetherell, of Aldborough, for Rosette, the best cow; and a third to Mr. Sanday, of Holme Pierrepont, for the best sheep.

PRIZE LIST.

CATTLE.

SHORT-HORNS.

JUDGES.—Robert Holmes, Esq , Bellair, Ballycumber.
William Ladds, Esq., Ellington, Hunts.
Thomas Parkinson, Esq., Hexgreave Park, Southwell.

Bulls calved on or after the 1st of January, 1854, and previous to the 1st of January, 1857, 1st prize of 15 sov. and gold medal as best bull, Wm. Todd, Elphinstone Tower, Tranent, East Lothian (Young Heir-at-Law); 2nd of 5 sov., Lord Talbot de Malahide, Malahide Castle, Malahide (Priam).

Commended.—Captain McClintock, Bunbury (Comet); Jaffray Barcroft (Beau of Kilbogget).

Bulls calved in the year 1857, 1st prize of 15 sov., Jaffray Barcroft, Kilbogget House, Cabinteely, county Dublin (Sir Colin); 2nd of 5 sov., Thomas Barnes, Westland Moynalty (Dr. M'Hale).

Commended.—Lord Talbot de Malahide (General Wilson).

Bulls calved on or after the 1st of January, 1858, 1st prize of 15 sov., J. P. Tynte, Tynte Park, Dunlavin (Clydesdale); 2nd of 5 sov., Francis Lindsay, Derryboy, Killeyleagh (Mystery).

Cows, in calf or in milk, of any age, 1st prize of 10 sov., Wm. Todd, Elphinstone Tower (Volga); 2nd of 5 sov., James Douglas, Athelstaneford, Drem, East Lothian (Rose of Sharon).

Heifers, in calf or in milk, calved in 1856, 1st prize of 10 sov., gold medal as best cow or heifer, and Purcell Cup, value 100 sov., as best animal in the show, Richard Eastwood, Swinshaws, Burnley, Lancashire (Rosette); 2nd of 5 sov., James Douglas, Athelstaneford (Venus de Medicis).

Highly commended.—John Christy, Fort Union, Adare (Queen of Beauty the 2nd).

Heifers, in calf or in milk, calved in 1857, 1st prize of 10 sov., Thomas Ball, Robert's Walls, Malahide (Peahen 8th); 2nd of 5 sov., James Douglas, Athelstaneford (Maid of Athelstane.)

Highly commended.—James Douglas (Lady of Athelstane).

Heifers, calved on or after the 1st of January, 1858, 1st prize of 10 sov., Richard Eastwood, Swinshawe (Souvenir); 2nd of 5 sov., Thomas Ball, Robert's Walls, Malahide (Letitia).

Highly commended.—Thomas Ball, Robert's Walls (Josephine); Thomas Lee Norman, Corballis, Ardee (Princess Maude); John Christy, Fort Union, Adare (Limerick Lass the Third).

Commended.—Thomas Lee Norman (Fair Maid); James G. Wood, Castle Grove, Ballymaleel, Strabane (Clarionet); Thomas Ball, Robert's Wall, (Agatha).

OTHER BREEDS.

JUDGES.—S. Anstey, Esq., Manavilly Farm, Cornwall.
David Hastings, Esq., Orangefield, Belfast.
Hugh Watson, Esq., Keillor, N. B.

Hereford bulls, calved on or after the 1st of January, 1854, prize of 10 sov., John E. L. Hewer, Vern House, Hereford (Purifier).

Devon bulls, calved on or after the 1st of January, 1854, prize of 10 sov., Robert Quin Alexander, Acton House, Poyntzpass (Inkerman).

Polled Angus or Galloway bulls, calved on or after the 1st January, 1854, prize of 10 sov., Lord Talbot de Malahide (Polled Angus Lucullus).

Ayrshire bulls, calved on or after the 1st January, 1854, prize of 10 sov., Henry Harrison, Holywood House, Holywood, county Down (Madman).

West Highland bulls, calved on or after the 1st of January, 1854, prize of 5 sov., the Earl of Charlemont, Marino, Fairview, Dublin (Jock).

Kerry bulls, calved on or after 1st of January, 1854, prize of 5 sov., Charles Reilly, Artane, county Dublin (Ned of the Hills).

Hereford, Sussex, or long-horned Leicester cows, in calf or in milk, of any age, prize of 4 sov., John E L. Hewer (Hereford, Lofty 2nd).

Hereford heifers, in calf or in milk, calved on or after 1st of January, 1856, prize of 3 sov., John E. L. Hewer (Nelly).

Hereford heifers, calved on or after the 1st January, 1858, prize of 3 sov., John E. L. Hewer (Penelope).

Devon cows, in calf or in milk, of any age, prize of 4 sov., Henry L. Prentice, Caledon (Beauty).

Devon heifers, in calf or in milk, calved on or after the 1st January, 1856, prize of 3 sov., Sir Allen E. Bellingham, Bart., Castlebellingham (Marchioness the Third).

Devon heifers, calved on or after the 1st of January, 1858, prize of 3 sov., Henry L. Prentice (Moss Rose).

Polled Angus or Galloway cows, in calf or in milk, of any age, prize of 5 sov., Lord Talbot de Malahide (Polled Angus, Maid of Angus).

Polled Angus or Galloway heifers, in calf or in milk, calved on or after the 1st of January, 1856, prize of 4 sov., Sir F. W. Heygate, Bart., M.P., Ballarena, Magilligan, Londonderry (Moorhen).

Polled Angus or Galloway heifers, calved on or after 1st of January, 1858, prize of 4 sovs., Lord Talbot de Malahide (polled Angus Grace).

Ayrshire Cows, in calf or in milk, of any age, prize of 4 sovs., Meredith Chambre, Hawthorn Hill, Flurrybridge (Mabella).

Very highly commended, Sir F. W. Heygate (Dewdrop).

Commended, Sir F. W. Heygate (Myrtle).

Ayrshire heifers, in calf or in milk, calved on or after 1st of January, 1856, prize of 3 sovs., Lord Clermont, Ravensdale Park, Flurrybridge.

Best Ayrshire heifers, calved on or after 1st of January, 1858, prize of 3 sovs., Lord Clermont.

West Highland cows, in calf or in milk, of any age, prize of 4 sovs., Sir F. W. Heygate (Rose of Oban).

West Highland heifers, calved on or after 1st of January 1858, prize of 3 sovs., the Earl of Charlemont, Marino, Fairview, Dublin (Annie).

Kerry cows, in calf or in milk, of any age, prize of 4 sovs., Sir E. M'Donnell, Newhaggard, Lusk (Eugenie).

Kerry heifers, in calf or in milk, calved on or after the 1st of January. 1856, prize of 3 sovs., Model Farm, Glasnevin (Norah).

EXTRA PREMIUMS.

To be competed for by *bona fide* tenant farmers of Ireland, not paying more than £100 a year of rent.

Cows in calf or in milk, of any age, prize of 3 sovs., Patrick Inglesby, Glack, Ardee (shorthorn Muslin Lady).

Heifers in calf or in milk, calved in 1856, prize of 3 sovs., James Ward, Stormanstown, Ardee (shorthorn Maid of Stormanstown).

WATERFORD CHALLENGE CUP, VALUE ONE HUNDRED SOVEREIGNS.

Best lot of three horned animals (bulls or heifers), but not in mixed lots, not exceeding twenty months old, having been bred by exhibitor, and *bona fide* his property, Thomas Ball, Malahide, for shorthorn heifers Agatha, Letitia, and Josephine.

THOROUGH-BRED HORSES.

JUDGES.—Robert Holmes, Esq., Bellair, Ballycumber.
Hon. R. G. Talbot, Ballinclea, Dalkey.
Henry Thurnall, Esq., Royston, Herts.

Weight-carrying thorough-bred stallions, prize of 30 sovs., the Croker challenge cup, and medal, Hugh Morrow, Coraboola House, Tashinny (Young Colwick, by Colwick out of Princess by Blacklock).

AGRICULTURAL HORSES.

JUDGES.—Hon. W. Arbuthnot, Rackford, Blackrock.
Silvester Rait, Esq., Rathmoyle, Edenderry.
Hon. R. G. Talbot, Ballinclea, Dalkey.

Stallions of any breed, for agricultural purposes, foaled on or after the 1st of January, 1852, and previous to the 1st of January, 1857, first prize 30 sovs. and silver medal to Moore Brothers, Edenmore, Raheny, county Dublin (Clydesdale Sir William Wallace); second of 10 sovs., John Mill, Corballis, Donabate (Clydesdale Royal Charlie).

Commended, W. Hatch, Ardee Castle (Clydesdale Caledonia).

Draught mares in foal, or with a foal at foot, or having reared a foal in the year 1859, first prize of 15 sovs. to Sir Frederick W. Heygate (Clydesdale Nannie); second of 5 sovs., Nicholas M. Archdall, Crieve, Enniskillen (Clydesdale Jessie).

Commended, Molyneux Pooley Shuldham, Exmouth-place, Cheltenham, (Berwickshire Rose).

Draught fillies, foaled in 1856, first prize of 10 sovs. to Lord Clermont.

No further merit.

Draught fillies, foaled on or after the 1st of January, 1857, first prize of 5 sovs. to Archibald Steele, Myroe Slob, Myroe, county Londonderry (Clydesdale Jess).

Commended, Lord Clermont, Clermont Park, Dundalk,

SHEEP.

JUDGES.—George Brown, Esq., Avebury, Marlborough.
J. Clarke, Long Sutton, Lincoln.
Caleb Going, Esq., Traverston, Nenagh.

LEICESTERS.

Shearling rams, first prize of 10 sovs, and silver medal, and

Gold Medal as best of all the rams, to George Thunder, Kingston Lodge, Navan; second of 5 sovs., George Thunder.

Commended, George Thunder, for two other rams.

Rams of any other age, not exceeding three years, first prize of 10 sovs. to William Owen, Blesinton; second of 5 sovs., Thomas Marris, The Chace, Ulceby, Lincolnshire.

Highly commended, William Owen, Blesinton, for another ram.

Commended, Thomas Garde, Ballinaurra-house, Middleton.

Pens of five shearling ewes, first prize of 10 sovs. to Thomas Roberts, Farn, Strokestown; second of 5 sovs., William Owen, Blesinton.

Commended, George Thunder.

Pens of five ewes, not exceeding five years old, that have reared lambs up to 1st of June, 1859, first prize of 10 sovs. to Thomas Roberts, Strokestown; second of 5 sovs., Thomas Marris, The Chase.

Highly commended, William Owen, Blesinton.

Pens of five ewe lambs, prize of 5 sovs. to Charles Powell Leslie, M.P., Glasslough.

Commended, Sir Frederick W. Heygate, Bart.

OTHER LONG-WOOLLED SHEEP.

Not qualified to compete as Leicesters—all Cotswolds.

Best shearling ram, first prize of 10 sovs., W. H. Carroll, Tulla House, Nenagh; second of 5 sovs., W. H. Carroll.

Commended, T. Beale Browne, Hampen, Andoversford.

Rams of any other age, not exceeding three years, first prize of 8 sovs., T. Beale Browne, Hampen, Andoversford; second of 4 sovs., N. W. Roche, M.D., Fermoy, County Cork.

Pen of five shearling ewes, first prize of 5 sovs., T. Beale Browne; second of 3 sovs., T. Beale Browne, Hampen, Andoversford.

CHEVIOTS, OR ANY OTHER MOUNTAIN BREED.

Rams of any age, not exceeding five years old, first prize of 3 sovs, Lord Clermont; second of 2 sovs., Lord Clermont (Cheviots).

Pen of five shearling ewes, first prize of 3 sovs., the Marquis of Conyngham, Slane Castle, Slane; second of 2 sovs., the Marquis of Conyngham (Cheviots).

Pens of five ewes, not exceeding five years old, that have reared lambs up to the 1st of June, 1859, first prize of 3 sovs., the Marquis of Conyngham; second of 2 sovs., the Marquis of Conyngham (Cheviots).

BLACK FACES.

Best rams of any age, not exceeding five years old, first prize of 3 sovs., Lord Clermont; second of 2 sovs., Sir Frederick W. Heygate, Bart.

Pens of five shearling ewes, first prize of 3 sovs., Sir Fredk. W. Heygate, Bart.; second of 2 sovs., Lord Clermont.

Pens of five ewes, not exceeding five years old, that have reared lambs up to 1st June, 1859, first prize of 3 sovs., Sir Frederick W. Heygate; second of 2 sovs., Lord Clermont.

DOWNS.

For the best shearing ram, first prize of 5 sovs., Charles Wm. Hamilton, Hamwood, Dunboyne (Shropshire)

Rams of any age, not exceeding five years, prize of 5 sovs., R. Scott, Skirving, Camptown, Drem, N.B. (Southdown).

Pens of five shearling ewes, prize of 5 sovs, Thomas Marris, the Chase (Southdown).

Pens of ewes, not exceeding five years old, that have reared lambs up to 1st June, 1859, prize of 5 sovs., Charles William Hamilton, Hamwood (Shropshire).

Commended, R. Scott, Skirving, Camptown (Southdown).

PIGS.

JUDGES.—Hon. W. Arbuthnot, Rackford, Blackrock.
B. Harris, Highfield Wicks, England.
Henry Thurnall, Esq., Royston, Herts.

BLACK.

Boars under eighteen months old, 1st prize of 5 sov. and medal as best black boar, Robert George Glen, Kilfennan, Waterside, Londonderry (Berkshire); 2nd of 3 sov., William Joyce, Abbey Farm, Waterford (Berkshire).

Boars over eighteen months and under thirty-six months old, 1st prize of 4 sov., Lord Clermont (Berkshire); 2nd of 2 sov., Robert George Glen (improved Essex).

Breeding sows under eighteen months old, 1st prize of 4 sov., Lord Clermont (Berkshire); 2nd of 2 sov., Robert George Glen (Berkshire).

Breeding sows over eighteen months, 1st prize of 3 sov., Wm. Joyce, Abbey Farm (Berkshire); 2nd of 2 sov., H. Stanley M'Clintock, Randalstown (Berkshire).

WHITE.

Boars under eighteen months old, 1st prize of 5 sov. and medal as best white boar, Joseph Wilkinson, Roundhay, Leeds (large breed); 2nd of 3 sov., Lord Clermont (Cumberland).

Boars over eighteen months and under thirty-six months, 1st prize of 4 sov., Joseph Wilkinson, Roundhay (small breed); 2nd of 2 sov., Wellesley Prendergast, Listerlin, New Ross, County Wexford (Cumberland).

Breeding sows under eighteen months old, 1st prize of 4 sov., H. L. Prentice, Caledon (Cumberland); 2nd of 2 sov., Lord Clermont (Yorkshire).

Breeding sows over eighteen months old, 1st prize of 3 sov., Henry L. Prentice, Caledon (Cumberland); 2nd of 2 sov., Russell Patteson, Fair Hill, Dundalk (large Yorkshire).

EXTRA PREMIUM.

Best breeding sows over eighteen months old, prize of 3 sov., Robert G. Glen (Berkshire).

IMPLEMENTS.

JUDGES.—John Clarke, Esq., Long Sutton, Lincolnshire.
John G. Coddington, Dulany.
C. G. Grey, Esq., Ballykisteen, Tipperary.

THE IRISH FARMERS' GAZETTE CHALLENGE CUP, VALUE FIFTY GUINEAS.

For general collection of implements, manufactured by the exhibiter, and suited to the agriculture of Ireland, J. Gray and Co., Uddingston, Glasgow.

DAIRY PRODUCE.

JUDGES.—George Burrowes, Esq., Carrickfergus.
Samuel McConnell, Esq., Belfast.
James McDonnell, Esq., Carlow.

BUTTER.

Firkins of butter, 70 lbs. weight, independent of the firkin, suited for the English or London market, and made on the farm of the exhibiter during the season of 1859, first prize of 3 sovs. Mrs. E. Smith, Knocks House, Clonakilty; second prize of 2 sov., Baptist Gamble, Grann, Enniskillen; third prize of 1 sov., Henry Leslie, Drumslade, Coleraine.

Firkins of butter, 70 lbs. weight, independent of the firkin, suited for the foreign market, and made on the farm of the exhibiter during the season of 1859, first prize of 3 sovs., Baptist Gamble; second of 2 sovs., Mr. D. Patten, Glasslough.

Cool of butter, 30 lbs. weight, independent of the cool, and made on the farm of the exhibiter during the year 1859, first prize of 2 sovs, W. Johnstown, Temple, Patrick; second of 1 sov., Baptist Gamble.

CHEESE.

Couples of new milk cheeses made in Ireland, of the season of 1859, in imitation of any known and approved description of English cheese, not less than 20 lbs. weight each, first prize of 5 sovs., Lord Clermont, Clermont (in imitation of Dunlop); second, of 2 sovs., Henry Leslie, Drumslade.

FLAX.

JUDGES.—Henry Haslett, Esq. Newtown Limavady.
George Martin, Esq., Glenveen, Belfast.

Bundles not less than 16 lbs. weight, of mill-scutched flax, grown on the farm of the exhibitor, being an average sample of the produce of at least half-an-acre of British growth, and of the crop of the year 1858, prize of 3 sovs. David Patton, Trynanny, Glasslough.

Bundles not less than 16 lbs. weight, of hand-scutched flax grown on the farm of the exhibitor, being an average sample of the produce of at least half-an-acre of British growth, and of the crop of the year 1858, prize of 3 sovs., David Patton.

CEREALS AND GRASS SEEDS.

JUDGES.—Henry Haslett, Esq., Newtown Limavady.
George Martin, Esq., Glenveen, Belfast.

Collections of cereals and grass seeds, prize of 4 sovs. and medal, John Farquharson, Dundalk.

There were also prizes for poultry.

THE DINNER

Took place on the Wednesday evening, in the New Corn Exchange. Lord Erne, as President for the year, in the chair, supported by his Excellency the Lord Lieutenant, and a number of noblemen and gentlemen interested in the agriculture of Ireland. The body of the hall, however, was little more than half filled. After the customary loyal toasts, the President gave "The Lord Lieutenant and Prosperity to Ireland." In responding Lord Carlisle thus proceeded: As your noble President has said, this is by no means the first time I find myself the visitor and the guest of the Royal Agricultural Society of Ireland, and I have the satisfaction of seeing that you are not inclined to consider me a stranger. Indeed, my fears might have run in a contrary direction. I might have apprehended that just as by the judicious regulations of your show-yards the same animals are not allowed to compete for an indefinite number of times, but that there are strict limitations of "two-year-olds," "three-year-olds," and "four-year-olds," which must not be transgressed, I might have apprehended that I should be considered too stale an object to be produced again on this occasion. Most happy shall I feel myself in connection with my renewed term of office in Ireland if, at least, I shall happen to be classed amongst that species of stock which is no longer entitled to compete for the prize, but is entered simply as commended. However this may be, my noble friend has rightly assumed that I must feel great pleasure in finding myself again amongst the members of your flourishing and vigorous society, and especially to have the privilege of being at an exhibition which, in all respects, has been so entirely worthy of their past renown and their advancing usefulness. Nearly all the points connected with the present show, and with the immediate condition of the society's affairs, I clearly shall do best to leave to those who, from familiar acquaintance with the whole subject of Irish agriculture, and from their having been, unlike myself, enabled by continuous and unbroken residence to keep their attention directed to the current transactions of the society, shall be thus qualified to speak with weight and authority on an occasion like the present. Still, gentlemen, as our interest to-day is mainly centred in our Irish soil, perhaps you will allow me for a very short time to occupy the sort of vantage ground which this annual meeting of the Royal Agricultural Society presents to us, and to glance at one or two of the leading features of the prospects we may thus take in of the general condition of the country. Now, on looking into authentic documents, I find that the land under tillage in Ireland in the first year when these returns were calculated—in the year 1847, twelve years ago—amounted to 5,238,575 acres. In the year we have just completed, in the year 1858, they had increased to 5,882,152 acres, being an increase in these twelve years of six hundred and forty-three thousand acres, or at the rate of 12 per cent. in eleven years. Now the climate and circumstances connected with it have with the true spirit of economy produced that result in the different kinds of culture. The grain crops have given way in a great degree to those more succulent and humid vegetables, which are classed as green crops, and accordingly I find in the same period to which I have referred that the cereal crops have diminished by not less than 565,000 acres, or 17 per cent. of the whole amount. The green crops have increased in nearly the same proportion. The live stock in Ireland, which was valued in 1841 at 19,375,000*l.* is valued now in the last year at 34,616,000*l.* (Hear, hear). With respect to the size of farms, farms under five acres, in 1841, amounted to 310,000. In 1858, instead of 310,000, they have decreased to 83,000. The farmers above 30 acres, in 1841, were 48,000, and in 1858 they have amounted to upwards of 156,000. Now, the absorption of small holdings I know is considered by some in this country as injurious. By others it is looked upon as a step in advance, but it is a fact. The application of capital to land necessarily leads to this result, just as in manufactures we see factories draw to themselves the labour that formerly expended on cottage looms. I take this to be according to the inevitable course of events; and whatever we may think of it, surely it is our duty to watch all such tendencies, and to adapt our measures to them. Among other improvements in the country I believe progress has been nowhere more remarkable than in the dwellings of the labouring classes. The subject is now under the immediate consideration of the Imperial Legislature, a bill having been brought in upon the matter by an excellent gentleman of a neighbouring county, Sir William Somerville. I know that the subject has largely engaged the attention of another gentleman from the same county, whom I have the happiness of seeing at this board—Mr. Naper, and I find with great satisfaction that the Royal Agricultural Society of Ireland, which is peculiarly qualified by its position and its objects to take the lead upon such a subject, announces it as one of its constituent and primary objects to promote improvement in the dwellings and domestic condition of the people of Ireland, and they have founded prizes for the best cottages. Equally, if still not more gratifying has been the rapid diminution of pauperism in this country. It appears that in Dundalk workhouse—in the town where we are now assembled—in the last ten years the inmates have fallen from 1,264 to 263. From 107 able-bodied males they have decreased to 31. The commissioners for inquiry into the condition of the poorer classes in Ireland, in the first report made in the year 1836, estimated the number of persons out of work and in distress during thirty weeks of the year, or upwards of half the year, as 558,000, and the persons depending on them to 1,800,000, or nearly one-third of the whole population. There are now in all the workhouses in Ireland only 37,000 inmates, with only 14,000 persons receiving outdoor relief (Hear, hear). Mendicancy is nearly completely extinct, and wages are very nearly doubled. Now the last element to which I will refer in this rapid contrast is crime. I do not seek, gentlemen, to deny that our ears are sometimes startled and our minds shocked by the occurrence of some fearful agrarian outrage, deepening occasionally into the darkest shade of guilt; but looking at the general amount of crime, and embracing in our view the country at large, the change is as remarkable of late years as it is a blessed one. In this county of Louth the criminal calendar this year has been, I believe, wonderfully light. The system of reporting outrages by the constabulary is singularly full and complete, and it is a point in which we are far a-head here of anything of the kind in England. Now take the period of the last ten years—the outrages reported in Ireland in the year 1848 was upwards of 14,000; in 1858 they had sunk to 3,492 (Cheers). Those of an agrarian character in 1848 were 795; 1858, no more than 225. Now, gentlemen, taking all those various items that enter so largely into the condition of the country as a whole, surely we must feel that it presents a picture which may still, to some extent, be of a chequered character, and upon parts of which the shadows of scattered clouds may still be resting; but still in all its broader spaces it is bright with all the hues of hope, and has the sunlight of heaven to gild it and to gladden. I feel that this is not the time or place to pause upon matters as those remarkable demonstrations which have of late excited much attention and much anxiety, and much, I would fain believe, of hope in the northern districts of this island. This I am sure of, that the old anniversaries of the present month have passed off with less of mutual provocation and bitterness, with more of Christian calmness and consideration, than ever had been the case before. And if, gentlemen, I may have appeared to have been too minute in this summing up of the signs and omens of present and future good before a company who are mainly brought together to promote the pursuits of agriculture, and to pay attention to what may seem at first sight the material wealth and progress of the country, yet I do feel that this great pursuit of the science of agriculture acts with rapid and immediate contact upon all the fibres of Ireland's happiness and Ireland's glory, and that I have been addressing those who, besides the stake and interest which they feel and which they possess in her green soil, are further keenly alive to all the yet even higher impulses which add to her just renown, and advance her in the scale of nations (loud and protracted cheering).

Lord ERNE, in returning thanks for the warm and flattering manner in which they had received his name, said, that Ireland was an agricultural country, and that by agriculture they must live. The Almighty had blessed them with all these natural resources from which agricultural prosperity must spring. They had as fine land as any in the United Kingdom, and a climate which, although it had not maintained its reputation during the present year, was called a "dropping climate." It was a climate peculiarly suited for green crops; but he was sorry to say that the Irish agriculturists did not cultivate their land as they ought to do; and they required a society like the present to induce them to farm their land better, and to make the great implement makers of England and Scotland take their most improved machinery over to that country. He was glad to find that

Irish agriculturists were availing themselves of the aid of machinery in the cultivation of the soil, though the use of improved instruments of husbandry was not so general and extensive as it should be. He was gratified to learn that orders to the amount of 2,000*l.* were given to one English agricultural implement manufacturer at the last show in Derry, and he would be happy if orders to double that amount were given to him on the present occasion. He was only sorry that the society could not lay an embargo on the vast collection of admirable and beautiful articles which were now displayed in their show-yard, and say to the manufacturers, "Gentlemen, we will not allow you to take one of these implements out of the country." The noble lord referred to a report published by the Royal Dublin Society, showing that the Swedish turnips and mangolds exhibited in 1857, at the society's show, were heavier and finer than those displayed during the same year at Birmingham. In the year 1856, of the Swedish turnips shown at the Dublin Society's show, six weighed 102lbs., and six at Birmingham only weighed 88lbs. Six mangels shown at Dublin weighed 108lbs.; at Birmingham, six weighed only 90lbs.; six red globes, weighed at the Royal Dublin Society's show, weighed 115lbs., while the same number at Birmingham weighed 104lbs. From this, therefore—and it was very seldom they could get a comparison—they saw that they could grow green crops if they liked. But the farmers wanted skill and wanted knowledge, and the only way to get that knowledge was by giving support to this society. He then proceeded to observe that the landlords of Ireland ought to support the society as well as the tenants, and he regretted to say that they did not do so. He found by the last report of the society that it had only 1,500 members. Now it was not so easy to find the number of landlords in Ireland, but he had taken the number of magistrates, and he found they amounted to 3,500, nearly all of whom it was reasonable to suppose were landowners. Taking the landlords of Ireland at 3,000, which was a moderate estimate, it was clear that only half of that number supported the society. This was not a creditable state of things, and it was his intention to ask the society to admit him, as their president, to write to every landlord in Ireland, making a personal appeal to him, and pointing out that it was his duty to give his warm support to an association which was so well calculated to advance the prosperity of the country. His lordship concluded by urging the necessity of farmers keeping correct accounts.

The other toasts were "The Royal Agricultural Improvement Society of Ireland," proposed by Lord Cremorne, and responded to by Lord Clancarty; "The Lord of the Soil" (Lord Roden), "The Royal Agricultural Society of England; the Highland Society, and Royal Dublin Society," proposed by Lord Monck, and responded to by Mr. Beale Browne, Mr. Hugh Watson, and Mr. George Roe, respectively; "The Vice-Presidents," given by Major M'Clintock, and responded to by Mr. Napper; "The Local Committee," by Lord Cloncurry, responded to by Major Joycelyn; "The Judges of the Show," by Mr. T. R. Hardy, and responded to by Mr. Thurnall; "The Successful Competitors," by Lord Belmore, and responded to by Captain Ball; "The Railway and Steamboat Companies," by Mr. Colthurst, responded to by Sir Edward M'Donnell; and "The Press," given by the Hon. R. G. Talbot, and answered by Mr. Purdon.

ROYAL LANCASHIRE AGRICULTURAL SOCIETY.

The show of our County Society this year at Blackburn is a "great success": brilliant weather, good arrangements, stock, &c., both numerous and superior, an immense attendance, and last, but not least important to the society's future success, an unprecedented amount in the shape of contributions for entry to the show grounds and fields where the implements were tested.

The following is a list of the numbers as regards implements and stock exhibited:

Implements for trial	245
Cattle	174
Horses	129
Sheep	52
Pigs	47

As to excellence, while, as on most former years, the animals which had obtained the head prizes at the exhibition of the Royal Agricultural Society of England (held this year at Warwick), were exhibited at Blackburn on Wednesday last, yet in no former year have these undoubtedly first-class animals met with such close competition from stock owned by tenant-farmers.

THE TRIAL OF IMPLEMENTS AND REAPING-MACHINES.

The trial of steam and other ploughs, reaping and mowing machines, &c., took place on Wednesday in two large fields which adjoin the old high-road from Preston to Blackburn, and are situated a few hundred yards north of the Cherry Tree railway station. The ordinary ploughs were first put in operation. About twenty teams were brought to the ground. The chief contest lay between a plough of Mr. Lazenby, of Feniscowles, and one of Mr. Whiteside, of Great Eccleston. The latter was handled by a ploughman from Rawcliffe, named Sheardley; and the former by the ploughman to Mr. Feilden. Sheardley has carried off several prizes, and his friends were most anxious that he should not be defeated in this contest; but the result was against him, and his defeat was generally set down to the superiority of his opponent's plough, rather than to any deficiency on the part of the ploughman from the Fylde.

Three reaping-machines were then put in competition. The crop selected for the trial was a field of oats, short and thin (indeed, it is a poor season for oats), and sadly too full of grass and weeds. Last year, at Ulverston, the machines were tried upon a crop of wheat, one most admirably chosen for proving their adaptability; this year the crop was the reverse, and was more suitable for the scythe than the reaping-machine—indeed, as it proved, it was only those machines that were able to cut grass as well as corn that showed to advantage. The three machines tested on Wednesday were—one belonging to Mr. R. Cookson, of Layton Hawes, and formerly the property of Mr. Billington, of the Bull Hotel, Preston. The inventor of Mr. Cookson's machine is a Mr. Wood; the maker, Mr. Clayton, of London. Next, we had a machine from Miss Ffarington, of Worden Hall, Leyland. It is Hussey's, improved by Messrs. Dean, Dray, and Co., of London, and is similar to the one tried last year at Ulverston. The third, "Crosskill's Improved Reaping Machine," was exhibited by the makers, the trustees of Mr. W. Crosskill, of the Beverley Iron Works, Beverley. It appears to be a combination of McCormick's and Bell's, with some original conceptions of the makers.

The machines were set at work in the following order: First, Wood's; second, Hussey's; third, Crosskill's. Previous to commencing operations, Crosskill's was put into motion down the furrows to cut a way through for the other two to commence working. Both Wood's and Hussey's succeeded in cutting the extent allotted to them in very fair style, and the very superior form in which the latter left the cut corn was much noticed. We heard several farmers remark that it was left in far better form for binding up than could have been accomplished by either scythe or sickle. Crosskill's machine did not succeed on Wednesday; it made far more frequent stoppages than the others, left a portion of the corn in several places uncut, did not deliver neatly, and the appearance of the plot which it cut, when compared with that gone over by the other machines, was somewhat slovenly. Crosskill's is strictly a reaping machine, and the other two are not intended for mowing; they were, however, tested, but the grass was too short, so that the result proved nothing as to their capabilities for cutting clover or rye grass.

Subsequent to the reaping of the oats, a trial was made with Messrs. Clark and Charnley's steam-plough, which consists of the traction engine we noticed last year, when at Ulverstone. It made three or four journeys across the field, ploughing at various depths as required, but the working was not so satisfactory as could have been desired.

THE EXHIBITION OF STOCK AND IMPLEMENTS.

The show of horned cattle, horses, sheep, pigs, poultry, roots, cheese, butter, implements, &c., was held on Thursday, in some most extensive fields belonging to the Lord of the Manor, J. Fielding, Esq., of Witton.

The following is a list of the prizes and Judges in each department:

The following gentlemen officiated as judges:

IMPLEMENTS.—Messrs. Roberts, Begbie, Ramsay, Wood, Hartley, and Boulton.

CATTLE.—Messrs. Banks, Douglas, Mason, and Patterson.

HORSES.—Messrs. Angus and Longton.

SHEEP AND PIGS.—Messrs. Addie, Mason, Lindon, and Fisher.

PRIZES.

HORNED CATTLE.

Silver Medals for the best animals on the field in their respective classes.

Bull: Col. Towneley, of Towneley-park, Royal Butterfly.

Tenant Farmers' Class: Jas. Dickinson, Upholland, near Wigan, Prince of Prussia.

Cows: Col. Towneley, Fidelity, two years and three months.

Tenant Farmers' Class: Jas. Dickinson, Amelia.

HORNED CATTLE.

BULLS.

Bull two years old and upwards: 1, Col. Towneley, medal and £10; 2, Jas. Dickinson, £5.

Bull above one and under two years old: 1, Thos. Atherton, Speke, near Liverpool, medal and £10; 2, Thos. Jolly, Warleby, near Northallerton, £5.

Bull Calf: 1, Jonathan Peel, Knowlmere, near Clitheroe, £3; 2, James Dickinson, £1 10s.

COWS.

1, Richard Booth, Warlaby, £5; 2, ditto, £3.

Heifer above two and under three years old: 1, Col. Towneley, £5; ditto, £2 10s.

Heifer not exceeding two years old: 1, Col. Towneley, £3; 2, Thos. Atherton, £1 10s.

Heifer Calf: 1, Sir C. Tempest, £2; 2, J. and R. Patterson, Hall Beck, Ulverston, £1.

HORNED CATTLE (Tenant Farmers').

Bull, calved previous to January, 1857: 1, John Backhouse, Long Lands, Cartmel, medal and £10; 2, James Dickinson, medal and £5.

Bull above two years old: 1, James Dickinson, medal and £10; 2, James Bretherton, Claughton, near Garstang, medal and £5.

Bull above one year old: 1, T. Atherton, medal and £5; 2, W. Boulton, £2 10s.

Bull calf: 1, J. Dickinson, £3; 2, Henry Cunliffe, Oswaldtwisle, £1 10s.

Cow: 1, J. Dickinson, £5; 2, John Bownass, Lawnds House, Hornby, £1 10s.

Best four dairy Cows: George Howarth, £1.

Heifer not exceeding three years old: 1, John Binns, Marsden, near Burnley, £5; 2, Rd. Nuttall, Vineyard Close, Tottington, £2 10s.

Heifer not exceeding two years old: 1, Thomas Atherton, £3; ditto, £1 10s.

Heifer Calf: 1, J. and R. Patterson, £2; 2, T. Atherton, £1.

HORSES.

STALLIONS.

For waggon or dray: James Robinson, Grove Inn, Broughton, Manchester, medal and £5.

For agricultural purposes: Thomas Edon, Barnsley, Yorkshire, medal and £5.

Thorough-bred: John and Lister Cockshott, Addingham, near Leeds, medal and £5.

Road or field: J. and L. Cockshott, medal and £5.

BROOD MARE.

Agricultural purposes: 1, William Suedell, Salwick, £5; 2, Jonathan Openshaw, Hothersall Hall, Ribchester, £2 10s.

Road or field: 1, Jonathan Peel, £5; 2, James Williamson, Lancaster, £2 10s.

COLTS.

Three-year-old, agricultural purposes: Robert Watson, Stonebridge Mill, Oswaldtwistle, £3.

Three-year-old, road or field: Jonathan Peel, £3.

Two-year-old, agricultural purposes: Jonathan Peel, £2.

Two-year-old, road or field: John Noble, Broughton, £2.

Yearlings, agricultural purposes: Jonathan Peel, £1 10s.

Yearlings, road or field: Mercer Bros. and Co., Great Harwood, £1 10s.

Foal, agricultural purposes: James Worsley, Lower Darwen, £1.

Foal, road or field: Jonathan Peel, £1.

EXTRA STOCK.

Horses for agricultural purposes: Thomas Lee, Manchester and Darwen, medal.

Horses for agricultural purposes, and colt for road or field: Alderman Cunningham, Blackburn.

SHEEP.

Leicester shearling ram: Geo. Browne, Troutbeck, Windermere, £3.

Leicester ram, any other age: George Browne, £2.

Southdown shearling ram: Duke of Devonshire, Holkar Hall.

Any other description of Down: A. Stavert, £3.

Of any other age: A. Stavert.

Ram, for mountain district: Wm. Midgley, Birketts, Clitheroe, £2 10s.

Pen of Leicester ewes: A. Stavert, £2.

Pen of Southdown ewes: Duke of Devonshire, £2.

Pen of shearling ewes: Duke of Devonshire, £2.

Pen of ewes of any other description of Down: R. E. Ashton, Lime Field, Bury, £3.

Pen of shearling ewes, any other description of Down: A. Stavert, £2.

Pen of ewes for mountain district: Geo. Browne, £2.

PIGS.

Boar, large breed: 1, John Harrison, jun., Heaton Norris, Stockport, £3; 2, ditto, £1 10s.

Boar, small breed: 1, Joseph Hindson, Everton, Liverpool, £3; 2, John Palmer, Thorley, Skipton, £1 10s.

Sow, large breed: 1, J. Harrison, jun, £2; 2, James Birch, Sefton, naar Ormskirk.

Sow, small breed, 1, R. E. Ashton, £2; 2, John Palmer, £1.

Extra stock—Sow, small breed, Col. Towneley.

SPECIAL PRIZES.

Additional, by the Local Committee.

HORSES.

Team and pair ditto, Robert Spencer, Blackburn, £3 3s.

Roadster, Robert Hopwood, Blackburn, £1 1s.

Hunter, T. Lund, Lovely Hall, £1 1s.

Carriage horses. Robt. Hopwood, £2 2s.

HORNED CATTLE.

Bull, T. Dewhurst, Ribchester, £2 2s.

Bull Calf, Henry Cunliffe, £1 1s.

Dairy Cow, George Howarth, £1 1s.

Two Dairy Cows, G. Howarth, £2 2s.

Drape Cow, James Parker, Blackburn, £1 1s.

COTTAGERS' PIGS.

1st, Bridget Walley, Blackburn, £1 1s.; 2nd, Anthony Crook, Blackburn, 10s. 6d.

IMPLEMENTS.

Reaping machine: medal and £20, Miss Ffarington, Worden Hall.

Thrashing machines: medal and £5, Alfred Nixon and Co., Liverpool.

Winnowing machine: Trustees of the late Mr. Crosskill, Beverley, £2.

Swing plough: £2, W. Lazenby, Feniscowles. Medal, Jno. Johnstone, Accrington.

Wheel plough: £2, W. Lazenby.

Pair horse grubber: £2, R. W. Ffrance.

Heavy harrows: £2, Picksley, Simms, and Co., Bedford Foundry, Leigh.

Light harrows: W. Lazenby.

Horse hoe, on ridge: £2, W. Lazenby.

Grinding mill or crusher: £2, Picksley, Simms, and Co.

Chaff cutter: £2, Richmond and Chandler, Manchester and Liverpool.

Turnip cutter: £2, J. Whitaker, Bedford, Leigh.

Churn: £2, Williamson, Brothers, Kendal.

Haymaking machine: £2, Richmond and Chandler.

Hay rake: £2, Richmond and Chandler.

One-horse cart: Trustees of W. Crosskill, £2.

Harvest cart, and spring cart: do., c.

THE DINNER.

About one hundred of the leading agriculturists of the county and neighbourhood sat down in the Assembly-room of the Town-hall to an excellent dinner. They were ably presided over by Colonel J. W. Patten, M.P., supported on his right by the Marquis of Hartington, M.P.; Peter Ainsworth, Esq., of Smithills Hall, near Bolton; Col. J. T. Clifton, Lytham Hall; W. H. Hornby, Esq., M.P.; and the Rev. Philip Graham, of Over Darwen. On the left by J. Pilkington, Esq., M.P.; John Baynes, Esq. (Mayor); J. Turner Hopwood, Esq., M.P. for Clitheroe. There were several members of the corporation in attendance. Throughout the evening the entertainment was enlivened by the performance of some select pieces of music by a band in connection with Mr. Whiteley's mill, and led by Mr. G. Ellis.

HARVEST-HOME AT SUDBROOK PARK.

The annual festive harvest-home on the farms of Dr. Ellis was celebrated at Sudbrook Park, Hydropathic Establishment on Wednesday evening.

About 120 acres of hay and 80 acres of corn had been successfully gathered without the use of intoxicating liquors.

The employer having for the fifth harvest supplied the people with chocolate and cake as a substitute for beer.

Most of the men are regularly employed on the farms and in the establishment.

The unanimous testimony of the men is in favour of the strictly temperance principles observed by all while employed on the estate. The steward testified that in every way the conduct of the men had been most satisfactory during the whole of the busy time. No swearing, indecent, or even angry words were heard to fall from the lips of any one of the men, women, or boys.

Notwithstanding that machinery, which required great care in its use to prevent serious accidents, had been extensively employed in cutting the great proportion of corn, and steam-power was engaged in the performance of other operations, not an instance of injury even to the skin of any of the labourers had happened, and not an hour had been lost by one of them.

These happy results have been the same during all the experience of the employer. The men have no scores to rub off at the jerry shops, and awake without headache after the harvest feast, returning soberly to their work next morning, without losing a single day.

The party invited to witness the festivity of the deserving labourers, consisting of ministers of the gospel, merchants, manufacturers, patients staying in the establishment, and gentlemen and ladies from the neighbourhood, were entertained by Dr. and Mrs. Ellis, in the Great Hall, afterwards, and expressed themselves highly gratified at the unique scene and entertainment.

The procession formed at the Ham Common Farm, and proceeded through the villages of Ham and Petersham to the beautiful mansion in the Park, in the following order:—

Band of music.
Steward on horseback.
Crimson banner, with the inscription,
"Welcome Harvest-home."
Two mowers with scythes.
Hay-making machine,
drawn by two decorated horses, followed by
Horse-rake, two haymakers, with drag and hand-rakes.
Two reapers with sickles.
Reaping-machine drawn by two decorated horses.
Cart loaded with sheaves, decorated with evergreens,
followed by
Webster and harvest labourers,
Steam-engine,
Threshing-machine.
Neddy and the provision-cart bring up the rear.

The supper was superintended by Mrs. Ellis at the head, supported by the Doctor and steward, at the other tables.

The strength of the tables was tested by the weight of plum-pudding, roast beef, and the other appendages of a harvest supper, and abundance of chocolate was supplied to help the digestion, instead of hindering it by alcoholic drinks.

A suitable address of congratulation was delivered after supper by the doctor, followed by some kind words of advice from a clergyman present.

The steward testifying of his increased assurance that harvest work can be done as well or better without beer than with it.

Prizes for the best and quickest sheaf tyers were presented.

To the men who had continued in their employ without being convicted of swearing or drunkenness since the last harvest were presented a new waterproof cape and hat.

To the boys of whom no vice had been reported to the employer, a new suit of clothes and hat were given.

The result of such encouragement to deserving labourers has proved for some years very satisfactory in the moral improvement of both men and boys.

RIPENING SEEDS.—Cobbett and other writers on horticulture have ridiculed the practice of gardeners carrying some seeds (melon, for instance) in their pockets for a considerable time to improve them. There may, however, be some truth in this notion; for it has been suggested by an eminent botanist, that the seeds thus carried probably became more fruitful after having been kept some time, for the same reason that plants are more likely to come to full flower after a lengthened season of rest.—*Proceedings of the British Association*, 1857.

WHERE SHALL I BUY A PIANO?—We do believe that ninety-nine out of every hundred persons who are in want of this necessary ornament, and most essential requisite for the complete culture of the female portion of their families, do not know where to apply in London for a good piano at a reasonable price. The tip-top makers, whose names on an instrument, however indifferent, will ensure its sale at a price far beyond the means of the industrious middle classes, will not sell their pianos without such prices as we ourselves would think about more than once, before we would submit to. We were lately in want of one; and the question which we have headed this paragraph with, was a study to us for some days. We searched that refuge of the destitute, "Kelly's Directory," amongst the Piano-forte Makers, and three columns and a-half, or an array of nearly two hundred and fifty names, completely put us *hors de combat*. We consulted a friend, a musical one, and he referred us to a firm, the senior partner of which was for many years a finisher in one of the great houses in London. We purchased an instrument; and the result we feel in duty bound, not only in justice to them, but also to our readers who may be similarly circumstanced, to communicate thus fully. We have never recommended one tradesman over another to the favour of the public, and we set our face totally against puffing or recommending any person who may advertise his wares in our columns. We believe those manufacturers never did advertise with us, and we do not want them to do so. Ralph Smith and Co., of 171, Bishopsgate-street-without, are the makers to whom we allude. The piano which we purchased from them is as rich in tone as any similar instrument we ever touched from the hands of the very best makers. The fulness of the bass notes is remarkable; while the upper notes are as clear and bell-like as the most fastidious connoisseur could wish. We will not compare the cost for a moment with that of any of the other makers. It is far below it; but we venture to say that for £35 we have procured a piano which, had it the name of a fashionable maker, could not be purchased for double that sum.—*Mark Lane Express.*

REVIEW.

A DIGEST OF CASES CONNECTED WITH THE LAW OF THE FARM, including the Agricultural Customs of England and Wales. Second Edition.

BY HENRY HALL DIXON, BARRISTER-AT-LAW.

London : Stevens and Norton, Bell-yard, Lincoln's Inn.

The astonishment we cannot but feel, that in a country so eminently agricultural as England, no book which exclusively treated of the Law of the Farm had been published up to so recent a period as last year, when Mr. Dixon published his first edition, is to a great extent justified by the fact that no sooner had Mr. Dixon supplied the deficiency, than the first edition was soon disposed of, and we have now to call our readers' attention to a second. In this edition a considerable change has been made in the general arrangement of the work, and, what is a great desideratum in every law book, the index has been considerably enlarged, so that but little difficulty can be experienced in finding the law upon any subject which may arise in the ordinary management of a farm. The first chapter contains a statement of the agricultural customs in the different counties of England and Wales. This is, we believe, the only volume yet published which contains them all; and it renders the book extremely valuable to all land agents and surveyors, as well as to country solicitors. There are also separate chapters on Interests in Land, Easements, Trees and Fences, Dangerous Animals, Water, Servants, Conveyance of Horses and Cattle, Distress, Husbandry Covenants, Trespass and Game, Tithes, Landlord and Tenant, Contracts and Sales, and Horses and Cattle. And the appendex, besides several valuable forms and other useful matter, contains the rules of various horse repositories, of betting and coursing, of the Royal Agricultural Show, of the Smithfield Club, and of the New Metropolitan Cattle Market, and also of the Central Farmers' Club in Bridge-street, Blackfriars. So we need hardly add that to all country gentlemen, farmers, land-agents, and surveyors, as well as to lawyers of all sorts, the book must be most valuable.

Upon the subject of distress for rent, which is treated of in Mr. Dixon's ninth chapter, we ought to call our readers' attention to a case of Johnson *v.* Upham, which was argued last term in the Court of Queen's Bench, and in which Mr. Justice Wightman delivered judgment so recently as 2nd July last. This case is mentioned in the addenda to Mr. Dixon's book, though by mistake it is added to Chapter X. instead of Chapter IX. But we think he scarcely attaches sufficient importance to it, as it overrules several previous decisions, and so far makes a considerable alteration in the law of distress. It was formerly supposed, and the law is so stated by Mr. Dixon at page 205, that a tender of rent to a distrainer *after* the goods had been *impounded* was too late, although within the five days allowed by the statute to the party distrained upon to replevy his goods. And this often operated very hardly upon a tenant. But the law was so laid down in Thomas *v.* Harris, 1 M. and G (Maule, J., *dissentiente*), Ladd *v.* Thomas, 12 A. and E., and Ellis *v.* Taylor, 8 M. and W. But these cases must now be considered overruled by the above-mentioned case of Johnson *v.* Upham, in which the Court of Queen's Bench, in an elaborate judgment, after full argument and time taken to consider, have given their opinion that upon an equitable construction of the Statute of William and Mary, and in consequence of the change in the law relating to distresses for rent in that Statute, and 11 G. 2, c. 19, a landlord ought not to sell the goods after a tender of the rent and costs made *at any time within the five days.* This construction is, we think, most beneficial to both landlord and tenant, and it is only fair that a tenant should have a right of tender as long as his goods remain on the premises. The main object of allowing a landlord to distrain is to give him a speedy and summary remedy for his rent; and this object is sufficiently attained by the law as recently laid down by the Court of Queen's Bench.

The absence of side-notes, which are so useful to the practical man of business, is compensated for by the copious use of italics, which to some extent answer the same purpose. But we think it well worth Mr. Dixon's consideration whether he should not in the next edition favour his readers with references to the authorities in foot-notes, for which the list of cases at the commencement of the volume is scarcely an efficient substitute.

The limits of our space will not permit us to extend this notice to any greater length; but we should hardly have done justice to our numerous agricultural readers had we failed to call their attention to this very valuable work, which no farmer should be without.

A NEW REVOLVER PISTOL.—It is a saying worthy of being written in letters of gold, that "The man who makes two blades of grass to grow where but one flourished before deserves well of his country." This is an admirable saying in the piping times of peace; but "To invent a defensive weapon which, when compared with other fire-arms of the pistol genus, requires but half the care in the handling, and half the trouble in loading, with five times the means of protection afforded in defence," is another saying which, in war or peace, deserves being engraven on the memory, and which comes across our mind after a careful examination of "The Deane-Harding revolver." To those who have an instinctive dread of fire-arms from the liability of their mischievous effects by careless handling, yet who feel the necessity of some means of defence even in their quiet country residence, this pistol will be found a most safe and valuable investment. It is capable of being taken to pieces by the most inartistic handler of fire-arms for the purpose of cleaning, and can be put together again almost in a minute. It is capable of any amount of wear and tear, and cannot suffer from rough usage. It can be loaded with the greatest ease; a lever ramrod attached to the pistol, and acting vertically upon the bullet by the rectilinear pressure of the lever, effects that object. The discharge of one barrel, by pulling the trigger, causes the revolver to come to its position for a second discharge, and that without touching the cock: the mere pressure of the finger on the trigger five times in succession ensures five discharges of the weapon. This we consider to be the *ne plus ultra* of practical efficiency. The weapon is the simplest and the safest we have ever seen. To those who wish a ready arm at their bedside in a lonely residence, where the midnight thief and assassin is often lured by the hope of easy prey and little resistance, this pistol will be most useful and effective. To the more active and restless traveller abroad it will be invaluable. Officers going "where glory waits them" need only be told that such a weapon is to be had; their own instinct of self-preservation will lead them to visit 30, King William-street, London Bridge, where Deane and Son, gun makers to H. R. H. the Prince Consort, invite public inspection of the Deane-Harding revolver.

CALENDAR OF AGRICULTURE.

In the northern counties the harvest is prolonged into this month, and is managed as before directed. Cut beans with the hand sickle; tie the crops into sheaves with straw ropes, or better with twisted twine, which will last for several years; carry the crop when dry, and build it in ricks. Thatch all ricks after a time, to settle into form; rake the rick yard clean from straws, and carry all rubbish to the dung yards. Employ plenty of hands in harvest, and reward them liberally.

Gather fruits, such as pears and apples. Pick hops; use the haulm for litter, and place the poles under cover for another year. Dry with coke in the oast. Some use sulphur to give the hops a yellow tinge.

Plough the wheat fallows, and towards the end of the month begin to sow the grain; finish the application of dung and composts; plough lays for wheat, and scuffle the bean and pea grattans, as preparation for wheat sowing. Prepare by fallowing the green crop lands of next year, as potatoes, beetroot, and ruta baga; lay the dung on the land in drills, or in broadcast; if in drill, the ridglets are covered with fresh earth in the spring, or reversed when the crop is even; in broadcast the land is ploughed and then drilled. The autumnal preparation very much forwards the operations of the spring, and in dry early and climates the practice is very beneficial.

Scarify the surface of lucerne grounds before laying on the finely pulverized composts, which are very evenly and carefully spread over the land; bush-harrow the surface when perfectly dry, and roll it heavily. Such treatment will secure a very early spring vegetation.

Collect manures by every means to the liquid pit and to the dung heap. Burn for ashes, and keep them under cover.

Towards the end of the month sow rye for a seed crop, and also for being consumed on the ground by sheep in the spring. Sow winter tares mixed with rye, winter beans, or winter barley, on lands clean in good heart, over a partial fallowing with dung.

Scour road sides; clean out open ditches for the winter floods; enlarge the courses of brooks; use all earthy excavations for composts with lime, and the vegetable matters by burning. Omit no opportunity of collecting manures in any form.

CALENDAR OF GARDENING.

Prepare mushroom beds in the showery weather. Sow lettuces early for winter, and transplant into a roomy frame by pricking out to stand the winter. Some hardy sorts may bear the frosts, but protection is generally required.

Plant cabbages in an open situation, and on rich soils, and in fresh grounds if to be got at. All the cabbage plants of the tribe thrive amazingly in fresh grounds.

Spinach raised from seeds must be thinned out into regular distances of two or three inches; the plants will then become stocky, and may be thinned again, and the plants so removed are used for the table.

Thin out and hoe the spaces between the drills of turnips, and sow salads again, if required.

Exterminate all weeds, and produce the neatness and order which render a garden to be the sober picture during winter, that is more beautiful, perhaps, than the rampant luxuriance of summer.

Plant strawberry beds with young sets well rooted, or raised in pots, and removed with the balls of earth. Place nets before any wall trees, to catch the falling fruit. Destroy wasps, by suspending bottles half filled with treacle water, into which they enter, and are strangled.

Clip box edging; remove green-house plants to their winter quarter; transplant pinks from piping, and also the hardy herbaceous plants. Rough dig or fork all the vacant borders.

Weed and roll gravel walks when in a damp state.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

Although the weather of the past month has been somewhat changeable, it has on the whole been favourable for harvest work, which was commenced at a somewhat early period. Throughout England, as well as in Ireland and Scotland, immense breadths of land have been cleared of their wheats, and the quantity secured in the former country to this period is fully three-fourths of the entire crop; whilst, in the event of the atmosphere continuing dry, the remainder will no doubt be secured in a very few days. Considering the great scarcity of labour in some counties, the high prices demanded for harvest work (in some instances as much as 30s. per acre), and the lodged condition of much of the grain, the cutting and carrying of wheat have progressed rapidly; indeed, we believe that in no former season has more been secured in a given period than in the month just concluded. So far there is not much to complain of, although, of course, the additional expense in cutting is a serious item in the farmers' outgoings; but we have now to consider the extent of the yield, and the actual condition of the present crop. In those districts where heavy storms prevailed in July, the quality of the wheats will no doubt be somewhat under an average; but in some other counties the grain is turning out remarkably well

Hence the general quality of the crops will be various, and there will be rather a wide margin between the value of the finest and the most inferior samples. The question of quantity has not yet been accurately determined, though it may be estimated. In the course of our experience we have never seen such an extraordinary bulk of straw grown as this season: everywhere the supply is enormously large; and, where thrashing has been carried on to any extent, the growth of wheat has rather exceeded previous estimates, the produce of the thrashing machine having in many instances *exceeded* six quarters to the acre. Taking the whole crop, we believe that it is no exaggeration to say that quite as much wheat has been grown this year as in 1858; but our impression is that its general quality is not equal to last season. In some instances the samples of new wheat disposed of at Mark Lane have indicated smut; but, with this exception, they have been fairly suited to millers' purposes.

The different markets have been rather scantily supplied with home-grown wheats, owing to much of the farmers' time having been occupied in the fields. The transactions, generally, have been on a very moderate scale, and prices have shown a drooping tendency. In reference to the future course of the trade, we may observe that there is no reason for assuming that any important rise will take place in the quotations, although it would appear evident that they have seen their lowest range. We have now commenced the consumption of the new crop with a very large quantity of last year's wheat in stack, millers have imported freely on their own account, and the value of rice, potatoes, &c., is not likely to rule high during the winter months. The rapid falling off in the arrivals of foreign flour, the unusually small quantities now on hand, and the comparatively high prices abroad, indicate what may be termed steadiness in the demand for wheat; whilst the flourishing state of the commerce of the country is a favourable feature as regards consumption. But, though consumption may be large, and though imports of flour from France and the United States may continue on a limited scale, we see no reason to anticipate either excited markets, or any important rise in prices, for the all-important fact that the pressure of supply would speedily produce calmness in our markets in the event of their becoming excited, which we do not expect.

Much of the barley grown this year is a very light sample, and unfit for malting purposes. In some districts, however, the quality of the crop is very good. A large portion has been secured, and some quantity has been thrashed out. On the whole, as to quantity, the yield may be described as an average one. Oats, except in particular counties, are certainly a good crop; whilst, in numerous instances, the growth of both beans and peas is nearly double that produced in 1858.

The advices from most parts of the Continent in reference to the harvest are, on the whole, somewhat favourable; but we have reason to believe that the yield of wheat per acre exhibits a slight deficiency compared with last season. In the United States the crops are pretty generally represented as large, and of fine quality. The same remark may be applied to Canada. As there is, at present, no margin of profit on shipments to England, some considerable fall must take place in prices ere we receive increased supplies of produce from the States or Canada.

The state of the potato crop has been a source of much uneasiness on the part of growers. For the most part, potatoes have grown slowly—many of the samples are still small—and in numerous instances extensive losses have resulted from disease. On the Continent, too, the root is not likely to turn out well for storing purposes; hence, good and fine qualities have produced here from £5 to £7 per ton, which prices, by the way, are not likely to be supported, owing to the present low value of bread. That an immense *quantity* of potatoes has been grown this year, does not admit of a doubt; but we incline to the opinion that the winter stock will be considerably less than last season.

The total crop of meadow hay in this country, the second crop having turned out well, has now proved quite equal to 1857, which, it will be recollected, was the largest and best ever known. Clover hay is, likewise, most abundant, so that prices are likely to rule comparatively easy.

The supplies of fat stock on offer in our leading markets have been somewhat extensive. Generally speaking, the trade has been somewhat inactive, but without producing any important change in the quotations. Lambs, however, have fallen in value fully 4d. per 8lbs., as the "season" is now drawing to a close.

Notwithstanding that nearly 100,000 bales of wool are in course of public sale in the metropolis, the wool trade, owing to the return of peace on the Continent, has continued in a healthy state, and prices have had an upward tendency, the advance being from 1d. to 1½d. per lb. On the Continent stocks appear to be very light, hence rather large buyers have lately made their appearance here.

The fruit crop generally, this season, has turned out almost a failure. Even in the best districts the growth of all kinds of fruit has been the smallest ever known, consequently prices are unusually high.

The transactions in hops have continued on a very limited scale, owing to the splendid appearance of the crop. In Kent, Sussex, &c., the bine is almost wholly free from disease: it is in full burr, and the produce is expected to be fully equal to last season, and possibly of much finer quality. The duty has been freely backed at £255,000 and even £260,000. Two new pockets have been sold in the Borough, one from Kent at £8 8s., the other from Sussex, at £8 per cwt. In 1857, the opening prices were £8 to £12 12s., with an estimated duty of £155,000. Last year the duty was called £250,000 to £260,000, and the quotations were £5 12s. to £8 8s. per cwt.

The green crops have progressed remarkably well, and the fine rains have materially added to the general weight of the turnips and beets. Very few failures of plant have been discovered, so that the supply of cattle food will be very large during the remainder of the season. The pastures for the most part exhibit a most luxuriant appearance, and the quantity of grass in them is much larger than in the ordinary run of years at this period.

The grain trade in Ireland and Scotland has presented no new feature of importance. Fine wheat, barley, oats, and indeed other articles have maintained their value, with a moderate inquiry, but the transactions have not increased to any extent. The shipments to England have continued limited.

REVIEW OF THE CATTLE TRADE DURING THE MONTH OF AUGUST.

Owing to the continuance of unusually warm weather, rather large supplies of fat stock have been on offer in the various cattle markets held during the past month. Notwithstanding the abundance of keep in the pastures, and the general abundance of food, the condition of both beasts and sheep exhibited has been by no means first-rate. Prime stock has, therefore, been in fair request, and prices have continued firm. Otherwise, however, the trade has ruled inactive, and the quotations have had a drooping tendency.

In our leading counties, as well as in Ireland and Scotland, the health of the stock has continued good, and very few losses have been experienced from disease. The graziers have now a fair prospect before them, since they have a very large supply of food for winter consumption, and since the root-crops are likely to turn out very large, when compared with some former years. The enormous quantity of straw, too, produced this season, will secure to them that article at a moderately low price.

Advices from the Continent state that disease amongst stock is much less prevalent, and that large numbers of sheep will be shipped to London during the ensuing month. The importations, since we last wrote, have been as follows:—

Beasts......................	6,502	head.
Sheep	29,175	,,
Lambs	3,308	,,
Calves	3,254	,,
Pigs......................	1,805	,,
Total....................	44,044	,,

COMPARISON OF IMPORTS.

Aug.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1854	5,507	19,770	1,178	2,495	2,176
1855	5,941	22,605	984	2,481	3,476
1856	5,677	17,801	1,271	2,301	1,901
1857	4,692	23,215	1,760	2,661	2,322
1858	8,293	19,500	2,764	3,512	2,935

The total supplies from all sources exhibited in the great metropolitan market have been as under:—

Beasts	23,170	head.
Cows	522	,,
Sheep and lambs	165,090	,,
Calves	3,322	,,
Pigs	2,330	,,

Included in the above are 10,750 shorthorns and crosses from Lincolnshire, Leicestershire, and Northamptonshire; 4 950 of various breeds from other parts of England; 350 Scots and crosses from Scotland; and 782 oxen and heifers from Ireland, including nearly the whole of the importations from the continent.

COMPARISON OF SUPPLIES.

Aug.	Beasts.	Sheep & Lambs.	Calves.	Pigs.
1854	21,384	164,920	4,286	3,870
1855	20 816	151,870	3,356	4,272
1856	21,271	147,250	3,354	2,875
1857	20,695	143,758	3,173	2,450
1858	26,915	151,530	2,127	3,510

Beef has sold at from 3s. to 4s. 8d., mutton 3s. 2d. to 5s., lamb 4s. 4d. to 6s., veal 3s. 4d. to 5s., and pork 3s. 6d. to 4s. 6d. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Aug., 1856.				Aug., 1857.				Aug., 1858.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Beef .. from	3	2 to	5	0	3	0 to	5	0	2	10 to	5	0
Mutton ..	3	4 —	5	2	2	10 —	5	4	3	0 —	5	0
Lamb	4	8 —	6	0	4	8 —	6	0	4	8 —	6	0
Veal......	3	6 —	5	0	3	6 —	5	0	3	6 —	5	0
Pork......	3	4 —	4	8	3	8 —	4	8	3	0 —	4	2

In reference to the foreign stock at hand within the last few weeks, we may observe that the beasts have reached us in moderately good, the sheep in tolerably prime, condition.

In Newgate and Leadenhall, very little meat has been disposed of, and the receipts from the provinces have continued limited. Prices have undergone very little change.

LEICESTERSHIRE.

It is gratifying to report of the harvest at this early date that, with the exception of beans, nearly the whole is now in the stack or barn. This rapid completion in securing the crops, and their becoming ripe so soon, is attributable to the fine and dry weather which prevailed in the months of June and July. In the latter month no rain, excepting a fine shower on the 2nd, fell till the 19th, when some wet days occurred, but only four to the end of the month, making a total of 1.19 inches, being much below an average. In the present month, much rain fell on the 4th, 7th, 8th, and the 15th, 16th, and 17th; these rains checked the progress of harvest work only for a short time; and during the interval between the 8th and 15th, and since the 17th, the weather has been so fine and hot, that but little damage was sustained, and the rain has been of the greatest benefit to the grass and root crops. Where due patience was exercised, the white corn has been secured in excellent condition, though, from fears as to the future, some corn has been put together in too great haste, those who waited longest having the advantage. Upon the whole, this may be pronounced a fine harvest, and no great impediment occurred as to its progress, excepting the lack of hands to get the corn cut, some having ripened prematurely, and waste has taken place by its shedding. This is an evil which has been seriously felt, and will be again in succeeding seasons, unless means are taken to supply this deficiency in hand labour. After all the mechanical skill and science which has been at work for some years past, for the improvement of agricultural implements, surely there are machines in existence which, under proper management, may free the farmer from this inconvenience in future years, and enable him to get his corn rapidly cut, when the great mass becomes ripe nearly at the same time. Are there not mowing and reaping machines already in use which will remedy this evil, if they are used with care and judgment? We have this month seen one at work, the master driving a pair of active horses, and a man raking the cut wheat off the platform, which was laid in quantities so even, and the heads so uniform, that, when bound, it formed a neat sheaf. The machine requires careful management, and the crops on which it is intended to operate must be selected with judgment; and though in the case referred to it could not, from the manner in which the corn was inclined, work quite round the field, three sides were expeditiously cut, and laid in a better form for a sheaf, and the work much cleaner done, than could be effected by the best hands with the scythe. We have no doubt, before the next harvest, farmers will provide themselves with machines of the best make to perform this kind of labour, and instead of being compelled to advertise for one hundred reapers to come on a certain day, or giving 30s. an acre for reaping their wheat, they will by machinery be able to cut their corn as it becomes ripe, without being so much dependant upon hand labour to their great loss and vexation.

From the great bulk of straw, and in many instances of premature ripening, the quality of the grain will be various, especially wheat and barley, and the yield may vary nearly as much as the quality. From what we observe, and from information we get, we are of opinion that in this neighbourhood the produce will prove quite an average in measure. As regards weight, the bushel of wheat will not produce the usual amount of flour by 3lbs. or 4lbs. Complaints as to quality are even greater as to barley than other grain, and samples will be inferior both in colour and weight than in most seasons. This will be a matter of importance as regards malt, as it will be difficult to meet with large quantities of sufficient fineness to make the pale malt, on which the quality of the beer (Burton especially) so greatly depends. The oat crop is heavy, and promises a good yield, and will be of better quality than either wheat or barley. As to beans, there is one feature peculiar to the winter variety; but why should their cultivation be persevered in? They are certainly more hazardous than the spring kind; and the preparation of the land, and planting them in the autumn, is a very inconvenient circumstance, interfering greatly with wheat seeding; we think this kind might well be discontinued on most soils. There are many good crops of the spring beans; they are well podded, and the yield will be greatly in excess of last year; in fact, a good average may be calculated upon. To speculate upon the future price of corn is scarcely worth while, for so many circumstances occur to affect its value, that no assumption of prices can be depended upon. White wheat is now selling in our market at 44s. to 48s., old red from 42s. to 45s., new 46s. to 47s.; Barley 32s. to 38s.; Oats 28s. to 34s.; Beans, old 48s. to 51s., new 45s. per qr.

From the dry weather in June (the time for sowing swedes in this neighbourhood), we had fears as to the young plant progressing favourably; but, contrary to expectation, there are few seasons in which they suffered less from their numerous foes; the fly was inactive, and the plant received no check from it. The showers which fell at intervals, succeeded by fine hot weather, forced the young plant forward, and the crops now exhibit a more healthy appearance than they have done in several past years. The mangold again is a fine luxuriant crop, and is more extensively cultivated, we are glad to remark, every succeeding year. These root crops being good, will yield an abundant supply of food for stock during the winter. Potatoes have suffered from the hot weather on dry soils, and the bulbs are small. We do not hear great complaints of the prevalent disease of former years; still it has made its appearance, but we hope in a milder form than usual.

We scarcely ever recollect a season when so general a failure of garden and orchard fruit occurred; neither gooseberries, currants, raspberries, apples, pears, or plums approach to anything like the usual yield. The produce of hay has been a good average, and the supply of grass for general stock has been plentiful, but the quality inferior, and it is only on the best land where the beasts have attained the usual degree of fatness, and great numbers come to market in bad condition. Store stock is very dear; and though the grazier gave great prices for his stock, when beef and mutton has been making 7d. per lb., we hope he has seen a profit by it.

From the short supply of labour during the harvest, to which we have alluded, the wages have been high, the general rate for good hands being 14s. or 15s. per week, with beer; and in the case of cutting the corn fabulous prices have been given; we have heard of 30s. an acre for reaping wheat in several instances.---Aug. 24.

SUFFOLK.

At every market and fair during the past week the main question has been, "What about your barley? What have you carted? Is it much grown?" In nine-tenths of the cases the answer has been a doleful one, either "Much grown," "Entirely spoiled," or "Good for nothing but food for cattle." Even men who have farmed for the past sixty years never remember the like. In the generality of cases it was a matter of no moment whether the crop was cut or not cut, for that uncut was so flattened to the earth by previous rains and thunderstorms that more than half the barley has sprouted, and in many instances we have seen the shoots from the ears of barley perfectly green. The question is, What will be the result? and What is to be done? We believe one-half the barley crop cannot be malted; consequently the barley secured free from sprout and in good condition will command a high price. Wheat will also probably be malted to a certain extent as a substitute; the damaged barleys must be consumed by stock, and the pea and bean crops will be sold to realize a certain amount, where the barley crop is unsaleable. We now hear accounts of men who some fifty years since sold sprouted barley for malt, and were well pleased with their bargain; and it is our opinion similar instances will occur in 1859. We know of men who are carting their sprouted barleys (with much clover intermixed) in a very rear state, that the stacks may heat, and not only become good fodder for cattle, but probably produce an inferior sample of malt. We believe the attempt to have been a wise one. There is an immense quantity of straw to the barley crop, and we believe the grain yield to be slightly above an average. The turnip and mangel wurtzel barleys are again this year much better, both in quality and yield, than the crops grown upon long fallows or summer lands. The wheat crop is chiefly carted in good condition. Where the return has been tested by the thrashing machine, the laid wheats do not produce equal to expectation, and perambulating enginemen inform us that 5 or 6 coombs per acre is the average produce from the much laid crop. The standing wheat crop has cut up equal to expectation; but we believe the average yield of the county is from 15 to 20 per cent. below par. Peas and beans cut up an average crop, and much of the pea straw harvested previous to the rain will prove very valuable for feeding purposes. We never saw the mangold wurtzel crop finer or better: the weight per acre is above the generality of years. Turnips and swedes are growing very fast; they have been injured by the caterpillar, but they promise to produce much food for stock. Not only has the harvest work been very backward, but from the rapidity with which harvest came upon us much important work was left undone. The root crop is consequently unusually foul; and from the scarcity of men no hands can be spared to clean the crop till the harvest work is finished. With a good promise of an abundance of winter food, with a fair average supply of summer food at the same time, with the present price of wool, and with the present relative prices of meat and wheat, it can be a matter of no great surprise that all sheep stock realize high prices. Ipswich fair was decidedly a dear fair; nor was the show of lambs equal to expectation. Mr. Hudson, of Castle Acre, and other Norfolk gentlemen who came to purchase the first class lambs, were obliged to leave without an outlay, as there were no lambs penned which attained to their standard of merit. Unwilling as we may be to admit it, Suffolk is not sufficiently a sheep county: it is not the sheep county it ought to be, and Wiltshire and a score of other counties are far in advance of it. Even at the Suffolk Agricultural Show the county produced but one pen of lambs to compete for the Society's prizes, which clearly indicates the little pride taken in the flock produce. Had it been that the same prizes were offered for the best Suffolk colt or filly, there would probably have been twenty entries. It is to a certain extent satisfactory to observe that sheep are decidedly on the increase; but it is necessary, by judicious crosses, to improve the breed as well as to increase the number. With free trade we must depend more on mutton, wool, and barley, and less upon wheat. Autumn cultivation is progressing in many districts; and for such tillage the weather of the past few days has been very satisfactory. It is the best and cheapest system extant for cleaning land, and only needs to be generally adopted.—Aug. 25.

SOMERSETSHIRE.

These few days past have been hot and sultry, after about two weeks of fine harvest weather, during which time the great bulk of our best wheats were secured, but, from want of hands, not so soon as they ought to be. We had some rain on the 5th and 6th, but it was partial. Wheat could not be safely put together. But on the 9th was the greatest fall of rain, particularly in the north and west part of the county, which caused considerable damage both to the standing and that which was on mow unthatched. Many have had to be spread abroad, and found much damaged. Since then, except a heavy storm on the 15th, we have had as fine drying harvest weather as could be wished; and now harvesting is all but finished, as follows: The bulk of the white wheat very fairly got in, heavy weight; a portion followed, too hastily got together, or damaged by taking wet in mow; and a large portion of the red, got in in excellent condition, was over-ripe and branny. Some of the winter peas got in wet, others too quickly. Spring beans secured in excellent condition. Some of the early barley sprouted and stained; the later ones finely secured. Oats much the same as to condition. On thrashing wheat, it proves to have much thin and blighted corn in the yield; and the best wheat will be two to three sacks per acre less than last year. Barley crops large. Oats the same. Beans irregular, rather over an average. Vetches large yield; not many grown. The rains helped the pastures, and brought up the turnip well; helped the swedes and mangels. The last promise well, but the swedes not equally so. Potatoes are small, and a great many more than were expected gone from disease; a poor, unprofitable crop per acre. The latter part of the month, farmers have brought their old wheat very freely to market, and a great deal has changed hands. Some few very choice white last week, in a few instances, realized 6s., but 5s. 6d. to 5s. 9d. this week. They are mostly long-thrashed lots. Reds 5s. to 5s. 3d., extra (64 to 65lbs.) 5s. 6d., new 4s. 9d. to 5s. 3d., red 5s. 6d.; while in some districts a good deal of the new has been disposed of. Beans began at 5s. 3d.; but they have not supported that price—5s. to 5s. 1d. They are very dry, particularly the spring ones. Barley, no sales. Oats 22s., 24s., to 25s.; the latter winter ones, 44lbs. per bushel. Flour, 31s. to 32s. 6d. During the harvest, labour has been very scarce. We scarcely ever knew so much complaint, or so much corn overstood, particularly the wheat; still we have done more in one month than for years. Nearly over in all our districts, beans and all, in five to six weeks; eight weeks, with average weather, being about the usual time for the process. Beef has been in great demand, although so difficult to keep when killed; and the price, 10s. to 11s., has paid the graziers better than last year. Lamb and Mutton have sold at fair prices. The late rains have quickened the sale, and prices of poor sheep as well as poor cattle rather advanced. Wool gone back 1d. to 2d. per lb. from the highest; not much doing. Cheese sells very well, at improving prices; even the new £3 to £3 10s., old £3 10s. to £4. Extra short make this year, from the spread of the distemper amongst the cows, lessening the produce of milk. Little doing in fat pigs; too hot and sultry.

MARHAM SHEEP SHOW.—The annual letting of long-woolled rams, bred by Mr. Thos. Brown, of the Hall Farm, Marham, was attended by a very numerous gathering of that gentleman's friends and customers. The business was preceded by a sumptuous luncheon, to which nearly 130 sat down, in a spacious booth near the house, shortly after one o'clock. The company proceeded to the field, when Mr. Beck proceeded to offer the sheep, which certainly deserved all the encomiums bestowed upon them. Fifty-two shearlings were let at prices averaging £7 9s. 6d., the highest being £15 and the lowest £5 5s.; and nineteen two-shear sheep at an average of £4 17s.; besides about a hundred lambs, which were privately let.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The past month commenced with doubtful weather, and till near the close there were occasional heavy falls of rain, threatening to the harvest, but eventually there was a return of brilliant summer weather. Nothing could be more opportune to the late gatherings, as the unusual scarcity of labour placed a great bulk of corn in extreme jeopardy. A favouring Providence, therefore, has well nigh carried the nation through the cereal crisis, and a large quantity has been well got in, though many parcels have been hurried, and sent quite damp to market. Great variety obtains in the samples, as was expected, some being quite equal to previous years; but the bulk was immaturely ripened by the excessive heat of July, and shows a deficiency of weight—so much so, that, notwithstanding the abundance of straw, we fear the yield will turn out below an average. Against this there is the consideration that an unusual stock of old wheat is yet on farmers' hands, while the granaries are well stored with foreign qualities. Generally we do not hear of great crops this season. There have been partial failures in the interior of Russia, in Southern Italy, Northern Africa, and France; the latter country, whence our chief supplies have lately been drawn, being considered by some very seriously deficient, say one-fourth less than the previous year. This may be made up by the improved yield in the United States and Canada; but it is doubtful whether much will be to spare thence, especially without more inducement to ship than is afforded by present prices. Denmark, Sweden, and Northern Germany appear well off as respects the wheat crop; but the yield of rye is univerally complained of, and the weight very light. Maize, both in Europe and America, also appears to have suffered. Potatoes in our own country are many of them very much diseased. In Ireland they are small, and though for a time they were considered healthy, they are now beginning to change, and in some localities seriously. Some barley has been sprouted much, is very thin, and good malting sorts promise a fair remuneration through the season. Winter beans had many failures, but spring sorts turn out better, as well as all kinds of peas; and the oat crop, from the successive rains, promises a good result. As respects future prices, there seems nothing in prospect, to produce much enhancement; but if the late potatoes should suffer as much as the early ones, this may eventually affect the wheat market, as well as raise the price of Indian corn. Taking it for granted that the wheat produce is much less than last year, our present rates are comparatively under the lowest point of last season, and as there is no foreign port whence shipments can be made to pay, the presumption is more in favour of an advance than otherwise. Politics do not seem to settle according to the peace of Villa-Franca, and should any of the great Powers again intervene in Italy, a new scale of prices may be the consequence. During the month 3s. to 4s. decline in new has occurred, the reduced price of new wheat being chiefly in consequence of its inferiority. Good old English and foreign qualities have declined only about 1s. to 2s. per qr. The following quotations from foreign ports show what little benefit can result to importers. Surely a business so unprofitable must lessen its proportions. At Paris, wheat of the best quality has been selling at 42s.; the quotations at Nantes were 38s. 9d. to 41s. per 480 lbs. The price of fine Polish wheat at Amsterdam was 56s. per qr. At Dantzic it was scarce, at 50s. to 52s. per qr.; fine red Antwerp was worth 47s. per qr. Berlin and Konigsberg still quote 49s. as a top price, Hambro' to 44s. 6d., Stettin 43s. 6d. Petersburg soft wheat was worth 43s. 6d., hard to 48s. The decree at Naples for the free admission of corn, had sent up the rates at Odessa, where quotations had ruled from 32s. to 40s. At Algiers, the Arabs complain of 43s. for their soft wheat, and are only disposed to sell through want of money. The quality of the new wheat at New York does not answer to the first reports of the harvest: white Kentucky was worth 46s. 6d., red Southern 44s. In Spain they have a better crop this year, though still injured by the excessive heat. Some talk of a surplus for England; but with old stocks exhausted this seems improbable, and rates there must decline seriously to make it practicable, as flour at the nearest port (Santander) is now worth 39s. per sack of 280 lbs.

The first Monday in London commenced on a moderate supply of English wheat; but there was plenty from foreign parts. Kent and Essex in the course of the morning made but a small show of samples, some new being among them. The smallness of the supply emboldened factors to ask more money; but millers were indisposed to purchase except on former terms, and even then the sales were not free. Some fine new Talavara wheat brought 53s. per qr. The foreign trade was only retail, at the previous rates. In the country very little was doing, as harvest had commenced, and everywhere lessened the supplies. Notwithstanding the small quantity showing, the general tone was less firm; Birmingham, Spalding, Alford, and Newbury being 1s. per qr. cheaper; but Hull, Bristol, St. Ives, and Newcastle fully maintained the previous rates. Liverpool on Tuesday was dull, and on Firday noted a decline of 1d. per cental, equal from 5d. to 6d. per qr.

The second Monday had less foreign wheat; but of English there was a fair supply. The near counties then sent up more liberally, and the proportion of new was about half, chiefly white. The new exceeded expectation, and the finest sampies sold freely at fully the previous rates;

but old, even of fine quality, was comparatively neglected, only selling slowly at former quotations. In foreign the trade was heavy, without change in price. In the country the tendency was more decidedly upward, Wolverhampton, Bristol, and Spalding being 1s. to 2s. per qr. dearer; Hull, Leeds, Birmingham, and Gainsborough were only firm; but Gloucester, Sleaford, and Newark were up 1s. per qr., while the markets in general fully maintained former prices. Liverpool on Tuesday was scarcely so dear, and though there was a return of wet weather on Friday, prices were not improved.

The third Monday had rather less foreign than the second, with only an average quantity of English. The show from Kent and Essex was but moderate, and the new this time was unequal to that exhibited the previous week. But as heavy rains had fallen factors commenced by asking several shillings more money. This advance millers were unwilling to pay, but eventually sales were made freely for all good sorts, at fully the previous quotations. Foreign also found better sale at fully the former prices; but factors could not quote any advance. The occupation with harvest work made all country markets thin and poorly supplied. They were consequently firm, with little doing. Hull, Birmingham, Gloucester, and Bristol maintained former rates; Newark and St Ives were 1s. per qr. higher, and Alford made 1s. to 2s. per qr. more money. Liverpool on Tuesday rather gave way to buyers, the attendance being thin; but on Friday the inferior condition of the new wheat created a better demand for good French red, at fully former prices.

On the fourth Monday the foreign supply was diminished; but of English the arrivals were improved. In the course of the morning there was but a small show from Essex, though Kent was not deficient. The new then brought to market being below the quality of what had been seen previously, was very difficult to dispose of, and 1s. per qr. less was taken for the medium qualities, some being so much out of condition as scarcely to be saleable. Fine new and old hardly maintained their value, but the secondary qualities of foreign, being required for mixing, sold on fully the previous terms.

The country markets this week all came very dull. Hull and Newark were 1s. to 2s. per qr. cheaper; Birmingham, Lynn, Boston, and several other places being 1s. per qr. lower; Liverpool was in favour of buyers both on Tuesday and Friday, with a small decline; on the fifth Monday, with moderate supplies from Kent and Essex, the weather being fine, new wheat, still inferior, was fully 3s. per qr. down, old being also 1s. to 2s. cheaper; and the foreign trade was quite in suspense.

The arrivals in the port of London in the month of August were 23,877 qrs. English wheat, and 68 894 qrs. foreign, against 28,678 qrs. English, 77,868 qrs. foreign in August last year. Of flour the receipts in the same time were 56,106 sacks English, 2,168 sacks 70 brls. foreign, against 68,221 sacks English, 195 sacks 12,011 brls. foreign in August 1858, showing a great falling off both in English and foreign arrivals. The imports into the kingdom for July last were 376,944 qrs. wheat, 304,888 cwt. flour. The flour trade, since the reduction of 3s. per sack on the part of the town-millers on the first Monday, has very little varied through the month. Town prices commenced at 43s. per sack for the best, and Norfolks at 30s. On the third Monday the latter advanced 1s. per sack, and on the fourth Monday lost the improvement. The unsatisfactory result of French importations has led to a material falling off in that description, and some of the importations that were placed to speculators, beyond the consumptive demand, are now in warehouse much deteriorated in quality by the excessive heat of the season. On the fifth Monday Norfolks further declined 1s. per sack.

The barley trade, as usual at this time of the year, has been unimportant, and prices have very little altered. The London market has appeared very unattractive to growers of malting qualities, very little new as yet appearing, though some brought 38s. per qr.; and some Scotch, weighing 57 lbs. per bush. 41s. per qr. Reports are conflicting as to this year's produce, some is no doubt sprouted, and the bulk has been immaturely ripened by the excessive heat of July, making the samples excessively thin, and more like that imported from the Black Sea than an average growth of English. Still there are many places that have escaped the storms, and been favoured in quality; and samples of first-rate malting will no doubt maintain a high range through the whole season, while such as proves inferior will find a smart competition with foreign, and will probably be low-priced. Very little English through the entire month has appeared in the London market, and foreign supplies have so materially fallen off, that on the fourth Monday some improvement of value was noted in all sorts. The imports into London for the month were 480 qrs. English, 11,706 qrs. foreign, against 1,257 qrs. English, 37,194 qrs. foreign for August, 1858.

The malt trade through the month has been dull and dragging, but we can note no change of value.

The oat trade, with heavy supplies from Russia, has rather declined as respects the value of imports from that country. The first, third, fourth, and fifth Mondays were each of them 6d. per qr. cheaper for Archangel, Riga, and Petersburgh oats; making the decline in Russian qualities fully 2s. per qr. in the course of the month. From other countries the arrivals have been moderate, and prices consequently have little varied, but their value has, of course been relatively lessened. The supplies from the United Kingdom have been quite moderate, and show that consumers have greatly depended on foreign imports. As oats at Riga, Petersburgh, and other Russian ports are now relatively dearer than in London, it is to be expected that supplies will soon decrease, and the chance is more in favour of a rise on present low quotations than otherwise, though the crop this year in England is well reported. The imports in the month of August into London were, 279,917 qrs. foreign, 8,000 qrs. Irish, 5,295 qrs. Scotch, and 2,009 qrs. of home growth; against 299,576 qrs. foreign, 2,893 qrs. Irish, 3,570 qrs. Scotch, 4,120 qrs.

English in August last year. So that, notwithstanding this month's good supplies, they were greater then; but the imports were larger, being 5,313 qrs., against 3,746 qrs. last month.

Beans and peas during the month have both come to hand in moderate quantities. Of the former many complaints were made as to the winter produce: the spring crop, supported by frequent rains in the time of bloom, may prove better; but the short arrivals from Egypt and France have left the market so bare, that on the fourth Monday they advanced 1s. to 2s. per qr.; and we expect, as Egypt is not well reported as to its crop, prices will be comparatively high through the season, unless there should be unexpected arrivals of Indian corn.

White peas have remained heavy all through the month, and unaltered in value. Grey appearing in some quantity have much declined in value, say 4s. per qr.; but as maples have not been forthcoming, they have kept inordinately dear. As to boilers, we think they have seen their lowest, as well as grey or dun, but maples cannot be expected to remain at such an artificial price, say about 45s., unless farmers should have neglected their growth. The imports into London in beans were for the month of August, 1,794 qrs. English, 1,447 qrs. foreign, against 2,918 qrs. English, 7,927 qrs. foreign, in August 1858. Of peas the month's imports were, 2,169 qrs. English, 2,286 qrs. foreign, against 1,655 qrs. English, 5,330 qrs. foreign last season.

Linseed, with moderate imports and a steady export trade, has rather gained in value than otherwise, and seems likely to remain dear. Rapeseed has maintained its value. New mustardseed, after bringing great prices for the first samples, has seriously declined, selling finally at 15s. per bush. for fine. Winter tares have also become more moderate. Canaryseed was showing an upward tendency, but since new has appeared in quantity it has become calm. New trefoil being inferior and the crop deficient, it has risen. Trifolium incarnatum being in demand beyond the French imports has greatly improved in value. Hempseed, carraway, coriander, and other seeds have been steady through the month. Of red cloverseed it is yet too early to form a correct opinion: the crop in some parts of France is said to have suffered; new white is offered from Germany at high prices.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter.

Wheat, Essex and Kent, white new 37 to 45 ....old 38 to 47
,, red new 36 41 ....old 36 43
Norfolk, Linc., and Yorks., red 37 45
Barley, malting, new..— to 37 .... Chevalier, new 36 38
Grinding .... 26 27 .... Distilling 28 30
Malt, Essex, Norfolk, and Suffolk .... 49 to 57 fine 58 65
Kingston. Ware, and town made .. 49 57 ,, 58 65
Brown............................ 48 49 — —
Rye ....new — — 30 31
Oats, English, feed .... 21 26....... Potato....... 26 29
Scotch, feed .... 22 27....... Potato...... 26 30
Irish, feed, white .... 21 24 fine 25 27
Ditto, black.......................... 21 23 ,, — 25
Beans, Mazagan .... 39 42...... Ticks 39 42
Harrow .... 40 45...... Pigeon....... 45 49
Peas, new, white, boilers 40 45 Maple 42 44..Grey 34 36
Flour, per sack of 280lbs., Town, Households 36s., fine 40 43
Country..nominal .. 28 30 ...... Households.. 31 35
Norfolk and Suffolk, ex-ship.................... 28 29

FOREIGN GRAIN.

Shillings per Quarter.

Wheat, Dantzic, mixed 50 — high do. — 53 extra — 54
Konigsberg.........48 50 ,, — — — —
Rostock ....50 — fine 53 old 54 — —
American, white.. 42 48 red .... 42 46 — —
Pomera., Meckbg., & Uckermrk, red 47 49 — —
Silesian, red ....41 46 white 46 50
Danish and Holstein 46 47
Russian, hard 44 45 .. French..40 46 white 44 47
St. Petersburg and Riga 42 46
Rhine and Belgium............................. 44 49
Barley, grinding ....26 28 .... Distilling 28 30
Oats, Dutch, brew, and Polands 23 27 Feed 20 24
Danish and Swedish, feed ..20 25 Stralsund.... 21 24
Russian .... 19s. 22s. 6d.
Beans, Friesland and Holstein......................... 39 42
Konigsberg ....37 40 Egyptian 35 37
Peas, feeding ....35 36 fine boilers .. 38 42
Indian Corn, white ....30 31 yellow 29 31
Flour, per sack ......French 27 32 Spanish..none — —
American, per barrel, sour. 22 25 sweet ... ,, — —

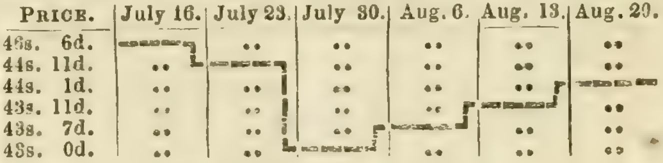
IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat.		Barley.		Oats.		Rye.		Beans		Peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
July 16, 1859	46	6	29	11	25	3	40	6	45	10	39	8
July 23, 1859	44	11	30	7	25	11	38	10	46	10	39	10
July 30, 1859	43	0	30	1	25	3	35	1	44	2	[illegible]7	0
Aug. 6, 1859	43	7	29	0	25	1	32	8	46	5	37	6
Aug. 13, 1859	43	11	30	1	25	2	33	3	46	7	36	9
Aug. 20, 1859	44	1	31	1	25	5	30	8	44	6	37	8
Aggregate average	44	4	30	1	25	4	35	2	45	8	38	1
Same time last year	45	5	31	1	27	9	33	4	45	4	44	2

COMPARATIVE AVERAGES—1858-59.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1858.		s.	d.
Wheat......	79,149 qrs.	44	1	Wheat......	73,943 qrs.	45	1
Barley......	1,386 ..	31	1	Barley......	1,208 ..	33	7
Oats.........	4,872 ..	25	5	Oats.........	5,949 ..	27	9
Rye	374 ..	30	8	Rye	529 ..	35	10
Beans	899 ..	44	6	Beans	1,209 ..	46	10
Peas.........	514 ..	37	8	Peas	427 ..	44	3

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

BRITISH SEEDS.

Mustardseed, per bush., new 12s. to 16s., brown 12s. to 16s.
Coriander, per cwt.......................... 14s. to 16s.
Canary, per qr............................. 68s. to 70s.
Trefoil, new................................ 24s. to 26s.
Tares, Winter, new, per bushel ....8s. to 8s. 6d.
Linseed, per qr., sowing —s. to 64s..crushing 54s. to 58s.
Linseed Cakes, per ton .... £9 10s. to £10 10s.
Rapeseed, per qr.............................. 54s. to 58s.
Rape Cake, per ton ....£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to —s............white —s. to —s.
Trefoil, ... —s. to —s.
Hempseed, small, 33s. per qr............ Dutch —s. to 38s.
Coriander, per cwt............................ 16s. to 18s.
Carraway ,, ... 36s. to —s.
Linseed, per qr., Baltic 52s. to 56s....Bombay 58s. to 50s.
Linseed Cake, per ton.................. £9 10s. to £11 0s.
Rapeseed, Dutch .... 54s. to 58s.
Rape Cake, per ton ....£5 0s. to £6 0s.

HOP MARKET.

LONDON, MONDAY, Aug. 29.—Nothing can be more favourable than the continued progress of the plantations, and the duty has in consequence advanced to £270,000, with every prospect of the amount being fully realized. Picking in some few instances has commenced, and about 50 pockets of the new growth have arrived at market. The few sold realized from 168s. to 200s., and the remainder are on offer at from 100s. to 112s. per cwt. MEASE & WILD.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS, MONDAY, Aug. 29.—The supplies of Potatoes on offer now are moderately good, but in very middling condition. Prime samples are in fair request, at full prices, but all other kinds move off slowly, at barely late rates. Shaws 55s. to 85s., and Regents, 70s. to 120s. per ton.

COUNTRY POTATO MARKETS.—YORK, Aug. 20: Potatoes are 6d. to 8d. per peck, and 1s. 10d. to 2s. per bush. MALTON, Aug. 20: Potatoes 1s. 4d. to 1s. 8d. per peck. LEEDS, Aug. 23: A large supply of potatoes, which sold at 6d. to 7d. wholesale, and 8d. to 9d. retail, per 21lb. KNARESBOROUGH, Aug. 24: Potatoes 10d. to 12d. per 21lb. SELBY, Aug. 22; Potatoes 7½d. to 8d. per 21lb. RICHMOND, Aug. 20: Potatoes 2s. 6d. to 2s. 8d. per bush. SHEFFIELD, Aug. 23: Potatoes sell at from 6s. to 8s. per load of 18 stones, with a plentiful supply. MANCHESTER, Aug. 23: Potatoes 5s. to 9s per 252lb.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:	s.	s.
Friesland	108 to	112	Cheshire	60	80
Kiel	—	—	Cheddar	60	82
Dorset	112	116	Double Glouc.	54	68
Carlow	98	104	HAMS:		
Waterford	98	104	York	78	86
Cork	92	104	Westmoreland	78	86
Limerick	90	100	Irish	70	80
Sligo	94	104	BACON: Wiltshire, dried	66	72
FRESH, per dozen 11s. 0d. to 14s. 0d.			Irish, green	58	66

BELFAST, (Thursday last.)—Butter: Shipping price 98s. to 107s. 4d per cwt, firkins and crocks 10d. to 11d. per lb.; Bacon 54s. to 58s., prime Hams, 80s. to 84s., second quality 60s. to 66s. per cwt.; prime mess Pork 92s. 6d. per brl.; Beef 120s. to 130s. per tierce refined; Irish Lard, in bladders 66s. to 70s., kegs or firkins 60s. to 64s. per cwt.

CORK BUTTER EXCHANGE, (Saturday last.)—The supplies for the week limited, owing to harvest operations. The receipts were 10,556 firkins, against 10,116 in corresponding week last year. Demand dull, in consequence of the soft condition of the Butter arriving in market. Prices have a declining tendency, firsts having fallen 1s., and low qualities 3s. since last Monday, when prices were 108s., 104s., 93s., 84s., 66s., 52s. This day's prices are 107s., 103s., 92s., 81s., 66s., and 52s. From the cause above assigned, it is likely that the supplies will be low for the next fortnight.

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, MONDAY, Aug. 29.—Since our last report only a limited business has been transacted in all kinds of home-grown wool, and in some instances prices have ruled the turn in favour of the buyers. The extent of the colonial sales, and the large quantities purchased thereat by continental dealers, have, for the time at least, checked operations in English wool.

Per pack of 240lbs.

Fleeces—Southdown Hogs	£18	0 to	£19	0
Do. Half-bred Hogs	18	0	18	0
Do. Kent	17	10	18	0
Do. Southdown Ewes and Wethers	16	10	17	0
Do. Leicester do.	15	10	16	10
Sorts—Clothing, picklock	18	10	19	0
Do. Prime and picklock	17	10	18	0
Do. Choice	16	0	17	0
Do. Super	14	0	15	0
Do. Combing—Wether matching	20	0	21	0
Do. Picklock	17	0	18	0
Do. Common	14	10	15	10
Do. Hog matching	23	0	24	0
Do. Picklock matching	17	10	18	10
Do. Super do.	14	10	15	10

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, Aug. 26.—There is quite as little doing in English combing wools as there has been for several weeks past, and so long as manufacturers are well supplied there will not be much improvement. Prices are not materially lower. There is a good demand for most kinds of short wool. For foreign clothing wool there is a good demand, though prices are scarcely equal to those paid in London. There is no change to report in low wool.

LIVERPOOL WOOL MARKET, AUG. 27.

SCOTCH.—The demand for Laid Highland is still limited, and consumers only take to supply immediate wants at about the quotations. White Highland is more enquired for. In Cheviots and Cross there is little doing. Prices are very high.

	s.	d.	s.	d.
Laid Highland Wool per 24 lbs.	11	6 to	13	0
White Highland do	14	6	16	6
Laid Crossed do.. unwashed	15	0	16	9
Do. do.. washed	16	0	18	6
Laid Cheviot do.. unwashed	17	6	20	0
Do. do.. washed	20	0	26	0
White Cheviot do.. washed	33	0	40	0

FOREIGN.—There is a fair demand for all kinds of good useful wool, at prices rather in favour of the sellers, and if the choice was better there would be more doing.

FOREIGN AND COLONIAL WOOL MARKET.

	Per lb.	s.	d.	s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect	3	4 to	4	6
	Prima	2	4	3	0
	Secunda	2	0	2	4
	Tertia	1	8	1	10
COLONIAL:—SYDNEY—	Lambs	1	11	2	4½
	Scoured do.	1	4	2	11½
	Unwashed	0	11½	1	4
	Locks and Pieces	0	8	1	11½
	Slipe and Skin	0	7	1	11½
PORT PHILIP—	Lambs	1	9½	2	7½
	Scoured do.	1	5	2	11½
	Unwashed	0	9	1	6
	Locks and Pieces	1	1	1	11
S. AUSTRALIAN—	Lambs	2	4½	0	0
	Scoured do.	1	5½	2	9
	Unwashed	0	10	1	3
	Locks and Pieces	0	11	1	9
V.D. LAND—	Lambs	1	8½	1	10½
	Scoured do.	1	8	2	7
	Unwashed	1	3½	0	0
	Locks and Pieces	1	3½	0	0
CAPE OF GOOD HOPE—	Fleeces	1	2½	2	2½
	Lambs	1	5½	1	10
	Scoured	1	2½	1	11½
	Unwashed	0	4	1	4½

MANURES.

PRICES CURRENT OF GUANO, &c.

PERUVIAN GUANO, (per ton, for 30 tons)	£12	0	0 to	£0	0	0
Do. Do. (under 30 tons)	12	12	0	13	5	0
KOORIA MOORIA GUANO, (48 per cent. Phosphate and 4 per cent. Ammonia)	6	0	0	6	10	0

ARTIFICIAL MANURES, &c.

Nitrate Soda (per ton)	£16	0	0 to	£17	0	0
Nitrate Potash or Saltpetre	32	0	0	33	0	0
Sulpht. Ammonia	14	0	0	15	0	0
Muriate ditto	20	0	0	26	0	0
Superphospht. of Lime	5	10	0	6	0	0
Soda Ash, or Alkali	11	0	0	12	0	0
Gypsum	1	10	0	2	0	0
Coprolite	2	10	0	3	0	0

	£	s	d	£	s.	d.
Sulph. of Copper or Roman Vitriol, for Wheat steep., 1st qual.	33	0	0 to	35	0	0
Ditto, 2nd quality	24	0	0	28	0	0
Salt	1	0	0	1	5	0
Bones, Dust, per qr.	0	19	6	1	0	6
Do. ½-inch	0	17	6	0	19	6
Oil Vitriol, concentrated, per lb.	0	0	1	0	0	0
Do. Brown	0	0	0¾	0	0	0

OIL-CAKES.

Linseed-cakes, per ton—						
Thin Americn, brls	£9	15	0	£10	0	0
Ditto bags	9	5	0	9	10	0
Thick do. round (none)				0	0	0

Marseilles	£9	10	0 to	£10	0	0
English	10	10	0	0	0	0
Rape-cakes, pr ton	5	10	0	5	15	0
Cottonseed cakes	5	10	0	8	0	0

JOHN KEEN, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

Prentice's Cereal Manure for Corn Crops	per ton	£8	10	0
Mangold Manure	,,	8	0	0
Prentice's Turnip Manure	,,	6	10	0
Prentice's Superphosphate of Lime	,,	6	0	0

Manufactured by Hodgson & Simpson, Wakefield, and Matthews & Co., Driffield.

Nitro-Phosphate	per ton	£7	10	0
Ammonia-Phosphate	,,	8	0	0

Vitriol, Bone, and Manure Works, Howden Dyke, Howden.

Ammonia Phosphate	per ton	£8	10	0
Anderton's Turnip Manure	,,	8	0	0
Super-Phosphate of Lime	,,	7	0	0

LIVERPOOL GUANO AND SEED, &c. MARKET.

Guano, Peruvian	£12	0	0 to	£13	0	0
Do. Upper do.	6	10	0	7	0	0
Ichaboe, per ton	5	0	0	6	10	0
Patagonian	4	5	0	5	10	0
Saldanha Bay	5	0	0	6	10	0
Kooria Mooria	3	15	0	6	0	0
Pedro Keys	3	10	0	5	0	0
Bone Ash, 75p. ct.	4	0	0	5	15	0

Linseed Cake—						
American, p. tn.	£9	0	0 to	£9	2	6
English	8	10	0	9	15	0
Cottonseed Cake	7	10	0	0	0	0
Nitra. of Soda, p. ct.	0	14	6	0	15	0
Linsd. Bomby, p. qr.	2	8	0	2	9	6
Cloverseed, American, red, new, per cwt., nominal.	0	0	0			

Printed by Rogerson and Tuxford, 246, Strand, London.

IMPORTANT TO FLOCKMASTERS.

THOMAS BIGG,

AGRICULTURAL AND VETERINARY CHEMIST,

BY APPOINTMENT, TO H.R.H. THE PRINCE CONSORT, K.G., &c.

LEICESTER HOUSE, GREAT DOVER-STREET, BOROUGH, LONDON,

Begs to call the attention of Farmers and Graziers to his valuable SHEEP-and LAMB DIPPING COMPOSITION, which requires no Boiling, and may be used with Warm or Cold Water, for effectually destroying the Tick Lice, and all other insects injurious to the Flock, preventing the alarming attacks of Fly and Shab, and cleansing and purifying the Skin, thereby greatly improving the Wool, both in quantity and quality, and highly contributing to the general health of the animal.

Prepared only by Thomas Bigg, Chemist, &c., at his Manufactory as above, and sold as follows, although any other quantity may be had, if required :—

4 lb. for	20 sheep, price, jar included ……	£0	2	0
6 lb.	30 ,, ,, ,, ……	0	3	0
8 lb.	40 ,, ,, ,, ……	0	4	0
10 lb.	50 ,, ,, ,, ……	0	5	0
20 lb.	100 ,, ,, (cask and measure	0	10	0
30 lb.	150 ,, ,, included)	0	15	0
40 lb.	200 ,, ,, ,, ……	1	0	0
50 lb.	250 ,, ,, ,, ……	1	3	6
60 lb.	300 ,, ,, ,, ……	1	7	6
80 lb.	400 ,, ,, ,, ……	1	17	6
100 lb.	500 ,, ,, ,, ……	2	5	0

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price **5**s. per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.

'Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and that it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards, and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

" I remain, dear Sir, your obedient servant,
" For JOHN TINGEY, Esq.,
" To Mr. Thomas Bigg." " R. RENNY.

In addition to the foregoing, he has very materially improved, as well as considerably reduced the price of his Dipping Apparatus; and he would venture to suggest that no Flockmasters ought now to be without one. Price in London,

New and Improved Dipping Apparatus, on Wheels	£14	0	0
Ditto ditto with Iron-bar Drainer	5	0	0
Ditto ditto ……..	4	0	0
Ditto, plain, with Wooden Drainer………	3	0	0

N.B.—Catalogues, containing List of Patrons, Testimonials, &c., to be had of all agents, or sent direct per post free.

CURTIS ON MANHOOD.—SHILLING EDITION.

A MEDICAL ESSAY ON NERVOUS AND GENERATIVE DISEASES.

Just Published, the New Edition, 120th Thousand, with numerous Plates, in a sealed envelope, price 1s., or sent, post-paid, by the Author, for 14 stamps.

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By J. L. CURTIS, 15, Albemarle-street, Piccadilly, London, whose practice, extending over a period of 20 years, affords a complete guarantee to patients that the utmost skill and experience will be made available in the treatment of their cases.

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REVIEWS OF THE WORK.

" CURTIS ON MANHOOD.—This is a truly valuable work, and should be in the hands of young and old." —*Sunday Times*, 23rd March, 1856.

" CURTIS ON MANHOOD.—The author has conferred a great boon by publishing this little work, in which is described the source of those diseases which produce decline in youth, or more frequently premature old age."—*Daily Telegraph*, March 27. 1856.

" CURTIS ON MANHOOD.—The book under review is one calculated to warn and instruct the erring without imparting one idea that can vitiate the mind not already tutored by the vices of which it treats."—*Naval and Military Gazette*, Feb. 1, 1851.

" We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman."—*Sun*, Evening Paper.

Published by the Author: sold also in sealed envelopes by Gilbert, 49, Paternoster-row; Hannay, 63, Oxford-street; Mann, 39, Cornhill, London; "Herald" Office, Taunton; Lockyer, Lincoln; Heywood, Oldham-street, Manchester; Howell, 6, Church-street, Liverpool; Ashley, Post-office, Newbury; Ferris and Score, Union-street, Bristol; Pierson, Shrewsbury; Jull, Braintree; Thew, Lynn; Peat, Chichester; Lurcock, Maidstone; Cook, Ipswich; Huscroft, Bury St. Edmunds; Dove, Swindon; Jearey, Bridewell Alley, Norwich; Smith, Rose Crescent, Cambridge; Slatter, Oxford; and by all Booksellers and Chemists in the United Kingdom.

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FOR THE HAIR, THE SKIN, AND THE TEETH,

are universally held in high estimation; and the fact of the distinguished patronage they enjoy, their general use in all countries, and the numerous testimonials constantly received of their efficacy, sufficiently prove the value of their "Macassar Oil," "Kalydor," and "Odonto."

THE FIRST PRODUCTION IN THE WORLD

For the GROWTH and IMPROVEMENT of the HUMAN HAIR is

ROWLANDS' MACASSAR OIL

proved beyond question by its successful results for MORE than HALF A CENTURY past, and when other specifics have failed.

It prevents Hair falling from falling off or turning grey, strengthens weak HAIR, cleanses it from Scurf and Dandriff, and makes it BEAUTIFULLY SOFT, PLIABLE, and GLOSSY. In the growth of

THE BEARD, WHISKERS, AND MUSTACHIOS

it is unfailing in its stimulative operation. For CHILDREN it is especially recommended as forming the basis of A BEAUTIFUL HEAD OF HAIR.

Its invaluable properties have obtained the Patronage of ROYALTY, the NOBILITY, and the ARISTOCRACY throughout Europe; while its introduction into the Nursery of ROYALTY, and the high esteem in which it is universally held, with numerous Testimonials constantly received of its efficacy, afford the best and surest proofs of its merits.—Price 3s. 6d. and 7s.; Family Bottles (equal to four small) 10s. 6d.; and double that size, 21s.

CAUTION.—On the Wrapper of each Bottle are the words, "ROWLANDS' MACASSAR OIL," &c., in white letters, and their Signature, "A. ROWLAND & SONS," in Red Ink.

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AND SOFT AND FAIR HANDS AND ARMS

Are realized by the use of

ROWLANDS' KALYDOR,

This Royally-patronized and universally-esteemed Specific exerts the most soothing, cooling, and purifying action on the Skin, eradicates *Freckles*, *Tan*, *Pimples*, *Spots*, *Discoloration*, and other *Cutaneous Visitations*, and renders

THE SKIN CLEAR, FAIR, AND BLOOMING.

CAUTION.—The words "ROWLANDS' KALYDOR," &c., are on the Wrapper, and their Signature, "A. ROWLAND & SONS," in Red Ink, at foot.—Price 4s. 6d. and 8s. 6d. per bottle.

WHITE AND SOUND TEETH

Are indispensable to PERSONAL ATTRACTION, and to health and longevity by the proper mastication of food.

ROWLANDS' ODONTO,

OR, PEARL DENTIFRICE,

Compounded of ORIENTAL INGREDIENTS, is of inestimable value in

IMPROVING AND BEAUTIFYING THE TEETH,

STRENGTHENING THE GUMS,

And in rendering

THE BREATH SWEET AND PURE.

It eradicates Tartar from the Teeth, removes spots of incipient decay, and polishes and preserves the enamel, to which it imparts a

PEARL-LIKE WHITENESS.

As the most efficient and fragrant aromatic purifier of the Breath, Teeth, and Gums ever known, ROWLANDS' ODONTO has, for a long series of years, occupied a distinguished place at the Toilets of the Sovereigns and the Nobility throughout Europe; while the general demand for it at once announces the favour in which it is universally held.—Price 2s. 9d. per box.

CAUTION.—The words "ROWLANDS' ODONTO" are on the Label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each box.

Sold by the Proprietors and by Chemists and Perfumers.

⁂ BEWARE OF SPURIOUS IMITATIONS!

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THE
FARMER'S MAGAZINE,
AND
MONTHLY JOURNAL
OF
THE AGRICULTURAL INTEREST.

Dedicated
TO THE
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LONDON:
PUBLISHED BY ROGERSON AND TUXFORD, 246, STRAND.

PRICE TWO SHILLINGS.

ROGERSON AND TUXFORD,] [PRINTERS, 246, STRAND.

DR. HASSALL

ON

THORLEY'S FOOD FOR CATTLE.

FROM THE "MARK LANE EXPRESS," 10th JAN., 1859.

74, WIMPOLE STREET, CAVENDISH SQUARE, 21*st December*, 1858.

HAVING, on more than one occasion, been requested to make an analysis of THORLEY'S WELL-KNOWN FOOD FOR CATTLE, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of THORLEY'S FOOD FOR CATTLE. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, thus, to the composition of THORLEY'S FOOD FOR CATTLE, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing THORLEY'S FOOD FOR CATTLE with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others, at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more valuable, but more expensive, articles. In some of the Foods I have detected ingredients which are positively hurtful.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. THORLEY'S FOOD FOR CATTLE is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the cleansing, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of THORLEY'S FOOD this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of THORLEY'S FOOD, they would be unable to extract all the nourishment which such articles actually contain. I consider, then, that the use of THORLEY'S FOOD is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—THORLEY'S FOOD FOR CATTLE as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,

Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected;" &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

Sir,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum*, and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-pint) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

THE FARMER'S MAGAZINE.

OCTOBER, 1859.

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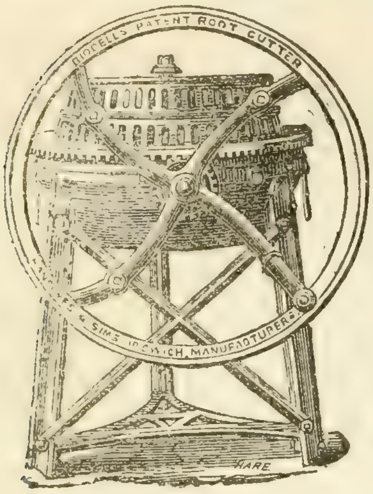

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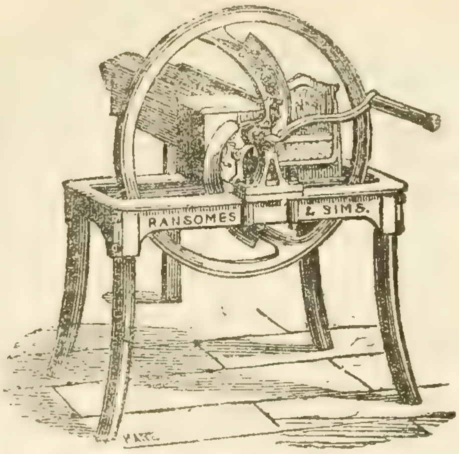

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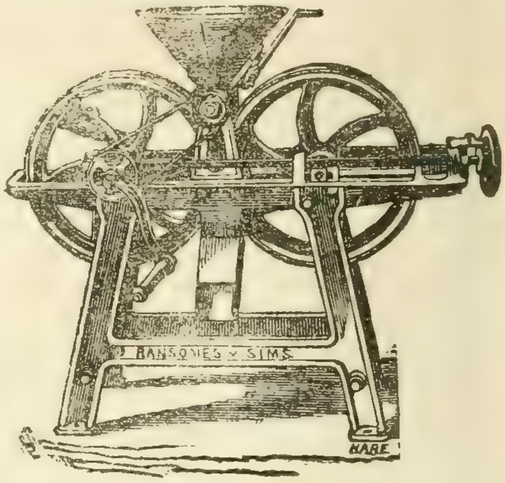

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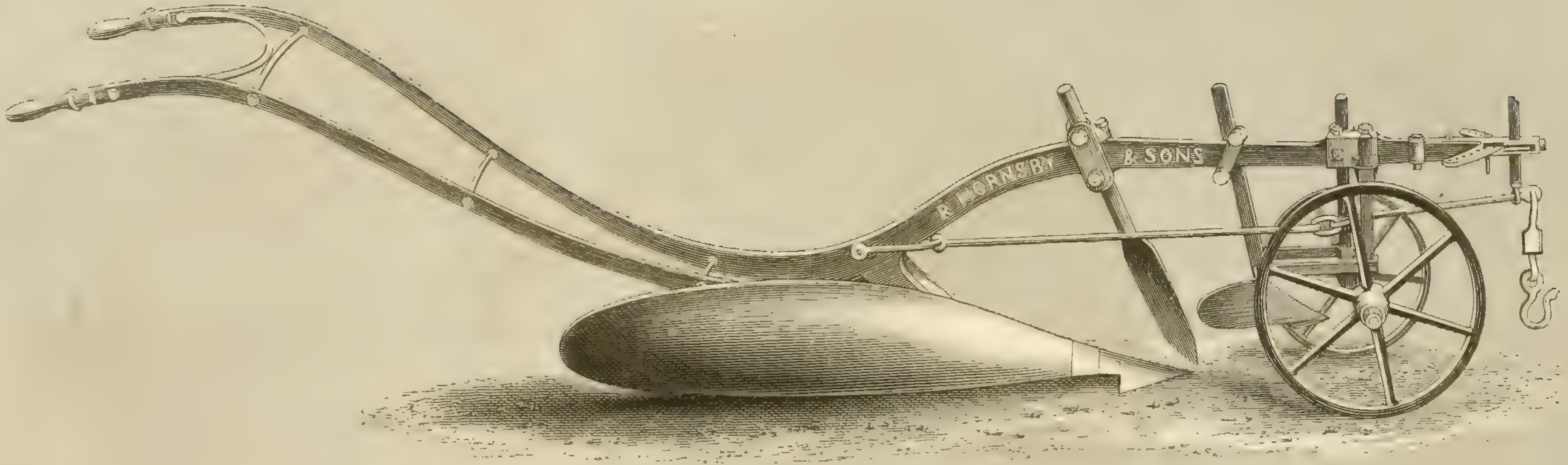
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THE FARMER'S MAGAZINE.

OCTOBER, 1859.

PLATE I.

HORNSBY'S PRIZE PLOUGH,

AS FIRST EXHIBITED AT THE WARWICK MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, JULY, 1859.

This already famous plough was one of the great features of the Warwick Meeting. In fact, its remarkable and altogether unexpected success created quite a sensation, both amongst "the trade" and the general public. As we said at the time, its work was extraordinary for its excellence, while it has equally strong recommendations in the way of make and price. In the many hot discussions over the awards of that busy week, it was the almost unanimous opinion that the Grantham plough had fairly earned the distinction it commanded, and some of our best farmers determined at once on giving it a trial.

In the Light Land class Hornsby's plough took the first prize, beating Ransomes and Sims of Ipswich (2), Howard of Bedford (3), Hensman of Leighton Buzzard (4), the Busby Implement Company, Ball of Rothwell, and Page of Bedford, all highly commended; and Goulding of Leicester commended.

In the Heavy Land class Hornsby's plough took the first prize, Ransome and Howard being declared equal for second, and Ball and the Busby Company for third.

For the General Purpose plough Hornsby stood second to the Howards of Bedford, who here retained their long-accustomed place, Ransome being third, the Busby Company fourth, Hensman fifth, and Ball highly commended.

The Grantham plough has not since been exhibited in competition, the Messrs. Hornsby considering themselves bound by an understanding amongst the leading implement makers not to go to trial this year at any meeting but that of the Royal Agricultural Society of England.

This plough is manufactured wholly of wrought iron, with the exception of the slide, name plate, and wheels. The share and turnfurrow, or breast, are attached to the slide or sole plate instead of to the frame as is usual; thus the beam, handles, and frame are solid pieces of wrought ironwork, obtaining the greatest possible lightness, with great strength and durability, doing away with the heavy cast-iron frame in ordinary use, and at the same time giving to the plough a light, simple, and pleasing appearance.

On the principle patented by Messrs. Hornsby, the vertical plate of the slipe or slide is much longer than the horizontal or sole, the advantages of which are, that by increasing the length of the vertical plate, the plough is rendered less liable to deviate from a straight line when at work, and, by decreasing the length of the horizontal or sole plate, it is more easily made to follow the undulations of the land, so that the ploughing may be everywhere of the same depth. It is also much more easily held, and works with greater steadiness and less draught than those of ordinary construction.

The shares are attached to lever necks of wrought iron, from the peculiar and patented principle of which they cut through the soil more uniformly, and with less power, than those in ordinary use. The lever necks are so constructed that no dirt can possibly work into the joint to interfere with its free action, which is capable of universal movement, and, being spherical, it is the firmest and most easily-adjusted arrangement that can be introduced for giving it more or less pitch, as also for directing the point of the share more or less to land. The spherical bearing is fixed close to the share, so that giving it more or less pitch, or land movement, does not raise it above or below the front of the breast.

The coulter fastenings are made wholly of wrought iron; the coulter itself is very easily adjusted for cutting in-land or furrow, and at a greater or less inclination. Skim coulters, with wrought-iron stems and steel miniature mouldboards, are attached to these plough by a wrought-iron clip, and also drag chains when desired. The wheel stems are fastened to slides passing through holes in the beam, and a piece is welded on the underside of the beam, through which they also pass, giving them a firm, wide bearing. By this arrangement the land wheel can be expanded or contracted, dispensing with the slide-axle at bottom, and causing the wheels to run nearly opposite to each other. The wheels are so constructed that no soil can adhere to, or be carried round by them—as is the case with most ordinary ploughs—the rims being bevilled on the inside.

We purpose giving, also, in due course the prize ploughs of Messrs. Howard of Bedford, and of Messrs. Ransome of Ipswich; so that our subscribers may have a fair opportunity of comparing the merits of one with the other.

PLATE II.

STATESMAN; A CELEBRATED SHORTHORN BULL.

Statesman (15342) was bred by the well-known auctioneer, Mr. William Wetherell, of Aldborough, Darlington. He was calved on November 20th, 1855, and got by Earl of Derby (12810), out of Lady Scarbro' by Earl Scarbro' (9064)—Stately by Statesman (13789).

Statesman's opening year, that of 'fifty-seven, was little more than one of promise. At the Salisbury Meeting of the Royal Agricultural Society of England, he was one of the twenty yearlings exhibited, but not amongst those noticed by the judges. Mr. Fawkes, of Farnley, stood at the head of this excellent class with Sir Edmund Lyons.

At the York Show of the Yorkshire Society, Statesman was highly commended as a yearling; Sir Edmund Lyons again taking the premium.

At the Stockton Meeting of the Durham Society, Statesman carried off the second prize for young bulls; and Sir Edmund Lyons, once more, the first.

In 1858, at the Chester Meeting of the Royal Society, Statesman was highly commended in the aged-bull class; Lord Feversham's Fifth Duke of Oxford standing first, and Mr. Barrowby's Marc Antony second.

At the Grantham Meeting of the North Lincolnshire Society, he took the first prize for bulls under three years old, beating Mr. Dudding's Admiral, and others.

At the Northallerton Meeting of the Yorkshire Society, he took the second premium to Fifth Duke of Oxford; Marc Antony and Sir Charles Tempest's Emperor Napoleon being both highly commended.

At the Sutherland Meeting of the Durham Society, he took the first prize in the open class as the best bull of any age, with some very strong competition against him.

At the Highland and Agricultural Society's Show, at Aberdeen, Statesman crowned all these performances, by taking the first prize of the aged class of bulls, in a large and remarkably good entry, including Lord Kintore's Lord Raglan (second), and Mr. Todd's Young Heir-at-Law (third).

We believe he took another mere local prize or two during the season. In the spring of the present year, at the sale of Mr. Wetherell's herd, Statesman was knocked down to Mr. W. B. Cox, of Pickering, for the very low figure of eighty-two guineas. Since his change of hands, he has been only shown at the Hull Meeting of the Yorkshire Society, where he took the first premium, beating Lord Feversham's Prince Imperial, Mr. Smith's Albus, one of Colonel Towneley's Young Butterflys, and others.

Statesman is a bull of extraordinarily good symmetry, of great length, with a full, deep frame, and altogether one of the "long, low, and level." He is not, however, by any means a grand-looking animal; and it takes some little time to see how really good he is all through. He is somewhat sharp in the hair; and his quality is hardly equal to his appearance. In fact, we fancy it has been this matter of quality only that has stayed him from figuring more frequently in the first place.

THE EFFECT OF MANURE ON THE GRASSES OF PASTURE LAND.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

It was an observation of a very early date that the grasses grow without the aid of man: and it was almost as soon discovered that by certain dressings the land was readily induced to produce particular plants, and to cease to yield others. It was noted, for instance, that couch grass or twitch appeared to follow the footsteps of the arable-land farmer, let him manure his land in whatever way he might.

In more modern days, when artificial manures began to be employed, similar observations were made. The farmers who used peat ashes observed, that when these were spread on pasture lands, that the white clover seemed to grow, as it were, spontaneously: the site of a wood-fire becomes speedily tenanted by the same plant. In still more recent times the application of crushed bones produced a similar result. The effect of their use at Welbeck, on grass land, was many years since described to me by the late Duke of Portland, in a letter, in which he observed: "They appeared so much to encourage the growth of white clover, that I had almost formed the opinion that it was superfluous to sow the seed." And, as I have elsewhere remarked, the honest Nottinghamshire farmers of those days had many a puzzling, learned cogitation upon this strange yet regular appearance of white clover wherever bones were applied. They, however, wisely recollecting that the bones chiefly came from the very land of fine white clover seed, strongly suspected that the seed came in the bones. The Lancasterian and Cheshire farmers, who as copiously dressed their fine pastures with bones, had no faith in the correctness of such an explanation, since they found that the white clover sprung up just as abundantly after the use of the *boiled* bones of the size-makers, as it did upon lands manured with those in a fresh or green state.

Even the use of rich food for the stock feeding on pastures, produces the most considerable results on the quality of the herbage. Oilcake given in this way is powerful in its effects. Mr. G. Dobito has briefly described a case of this kind (*Jour. Roy. Ag. Soc.*, vol. vi., p. 76). He says: "A friend of mine has lately adopted a plan which, under the same circumstances, I should strongly recommend; it is that of giving a small quantity of oilcake to grazing animals for the sake of improving an ordinary pasture field; its effects are astonishing. The pastures I allude to are small, and one or two bullocks more than they are calculated to carry are put into each of them. They are then allowed four pounds of cake per day per head: this, at a cost of about two shillings per head per week, which I believe the stock well paid for, has entirely altered the face of pastures from what they were three years ago, when my friend first adopted the plan."

The *effect* of certain top-dressings, then, upon the *kind* of herbage growing in a pasture has been long known; but the *extent* of that influence, till the recently reported laborious trials of Mr. J. B. Lawes and Dr. Gilbert, was not so well understood. The results of these researches are reported in the last and present volumes of the Journal of the Royal Agricultural Society of England.

The soil of the half-acre plots of natural pasture at Rothamstead, on which these trials were made, is a somewhat heavy loam, with a heavy clay subsoil resting on chalk.

These plots were *yearly* dressed in February or March *with one and the same kind of manure.* But each plot had a different *kind* of manure: two plots, however, for the sake of comparison, were left unmanured.

After three years' experience, these plots were in 1858 botanically examined. The result of that examination will be found in the following table (*Jour. Roy. Ag. Soc.*, vol. xx., p. 250):—

PLOT.

1. was one of those left unmanured.

4. had been *annually* dressed per acre with 200 lbs. of sulphate of ammonia, and 200lbs. of muriate of ammonia.

8. with mixed mineral manure, composed of—

$\left.\begin{array}{l}\text{200lbs. bone ash}\\ \text{150lbs. sulphuric acid}\end{array}\right\}$ Sup. phos. of lime.
300lbs. sulphate of potash.
200lbs. sulphate of soda.
100lbs. sulphate of magnesia.

PLOT.

10. with the same as plot 8, and 200lbs. of sulphate of ammonia, and 200lbs. of muriate of ammonia.
13. with the mixed mineral manure, the same as plot 8, and 400lbs. of sulphate of ammonia, and 400lbs. of muriate of ammonia.
16. with 14 tons of farmyard manure.
17. with 14 tons of farmyard dung, and 100lbs. of sulphate of ammonia, and 100lbs. of muriate of ammonia.

Let us next see the effect of these applications, using, as much as possible, the words of Mr. Lawes and Dr. Gilbert, who have so long aided each other in these and other valuable agricultural enquiries.

As regards the general character of the herbage of the experimental meadow, it may be well to give their preliminary remarks, viz., that in the third season (1858), to which their table of separations refers, there was no *dactylis glomerata* (rough cock's foot), no *poa pratensis* (smooth-stalked meadow-grass), no *bromus mollis* (soft brome-grass), and no *avena pratensis* (meadow oat-grass), detected in the produce of the *unmanured* plot. The rough cock's foot and smooth-stalked meadow-grass occurred, however, on some of the manured plots; and each in large proportion under certain conditions of manuring. But the soft brome-grass and meadow oat-grass occurred in very few cases at all, and then in very small quantity. There was, too, a striking absence, on all the plots, of several esteemed permanent meadow-grasses. Thus *alopecurus pratensis* (meadow foxtail), *festuca pratense* (meadow fescue), *f. duriuscula* (hard fescue), *phleum pratense* (meadow cat's-tail), and *poa trivialis* (rough-stalked meadow-grass), were not found in our list at all in the third season, 1858. The meadow foxtail, the meadow cat's-tail, and a fescue-grass were, however, each observed on one or more of the plots in 1857.

The table of the remarkable effects of the different descriptions of manure upon the complex herbage of which the meadow was composed, in developing the different kinds of plants, is thus introduced by Messrs. Lawes and Gilbert:

" Allusion has already been made to the greater development of the *leguminous* herbage by purely *mineral manures*, and to that of the *graminaceous* plants, or natural grasses commonly so called, by characteristically *nitrogenous manures*. In fact, the plots had each so distinctive a character in regard to the prevalence of different plants, that the experimental ground looked almost as much as if it were devoted to trials with different seeds as with different manures. So striking and characteristic, indeed, were the effects produced in this respect, that, in 1857 and 1858, the subject was thought of sufficient interest to induce us to request the examination of the plots by Professor Henfrey, to which he kindly assented.

"An endeavour was also made in the second year, 1857, to separate and determine the proportion of the different plants in carefully averaged and weighed samples, taken from the several plots as soon as the grass was cut. Taking advantage of the experience gained in this first trial, the separations have been carried out more carefully in the case of the produce on some of the most important plots in the third season, 1858. The results of these separations are recorded in detail in the table.

"The mode of proceeding in making the separations and estimations may be shortly explained. As soon as the grass on a plot was cut down, samples were taken from many parts of it. These were carefully intermixed in such manner as to shake out as little seed as possible; and then, from the whole, a certain quantity was weighed out to be further operated upon. Characteristic specimens of each of the plants *in flower or seed*, or in other conditions in which they could be recognized, were then selected as types; and a number of boys were set to pick from the weighed sample all they could find to correspond with these types. The remainder consisted chiefly of *detached foliage and undeveloped stems*, which was then separated into four or five different lots, according to types selected to the best of our judgment. Each weighed sample was thus divided into from fifteen or twenty different descriptions of herbage. The weight of each of the selected portions was afterwards taken—all in an equal condition of dryness. The weights so obtained, of the respective grasses, or other plants, or parts of plants, in the original weighed sample from the plot, were then calculated into their percentage relation to the collective weight of the whole of the separated portions in their partially dried state. It is the results so obtained that are recorded in the table."

Attention may now be directed to the comparative development of each of the plants according to the manure employed, taking each *seriatim*, in the order in which it predominated on the unmanured land.

The following tables, then, will give the amount in 100 grasses of the different varieties growing in 1858 on the unmanured plot, and on the plots manured for three years with the same dressings—

DESCRIPTION OF THE HERBAGE.	PERCENTAGE AMOUNTS OF EACH PLANT, &c.						
		Artificial manures.				Farmyard manure.	
	Unmanured.	Ammoniacal salts alone.	"Mixed mineral manure."	"Mixed mineral manure" and ammoniacal salts.	"Mixed mineral manure" and double quantity ammoniacal salts.	Alone.	With ammoniacal salts.
	(Plot 1.)	(Plot 4.)	(Plot 8.)	(Plot 10.)	(Plot 13.)	(Plot 16.)	(Plot17)
1.—GRAMINACEOUS HERBAGE; STEMS BEARING FLOWER OR SEED.							
Common rye-grass	16·77	14·73	23·39	32·23	12·10	29·00	14·92
Woolly soft grass, or Yorkshire Fog.	14·02	14·43	6·94	32·64	26·37	10·75	19·87
Fibrous-rooted, tall, oat-like grass	6·04	3·27	9·07	4·84	2·56	14·33	17·16
Sweet-scented vernal grass	5·43	0·41	1·01	0·09	..	0·34	0·66
Common or creeping-rooted bent grass, also black switch, &c.	4·82	0·97	0·03	1·48	2·16	..	1·25
Common quaking grass	2·07	0·41	1·01	..	..	..	..
Crested dogs'-tail grass	1·10	0·05	0·39	..	0·05	0·45	0·26
Rough cock's foot	..	1·64	..	1·38	20·17	..	..
Smooth-stalked meadow grass	..	..	..	..	..	14·89	10·10
Soft or downy brome-grass	..	..	..	..	0·10	..	..
Meadow oat-grass	..	..	0·34	..	1·57	..	0·40
Total	50·25	35·91	42·18	72·66	65·08	69·76	64·62
2.—GRAMINACEOUS HERBAGE; DETACHED LEAVES AND INTERMINATE STEMS.							
Leafy produce—from woolly soft grass	3·41	12·28	5·46	4·06	15·35	2·24	5·55
Coarse leaf, &c.—some bent grass; probably also cock's foot, soft brome-grass, and others	8·78	11·46	1·79	6·64	3·93	3·58	1·32
Middling leaf—chiefly bent grass; some meadow oat-grass, &c.	3·41	8·18	14·33	4·43	..	4·03	..
Fine leaf, &c.—unknown	7·81	16·37	5·82	2·58	1·18	4·48	4·22
Dead leaves and stems	2·44	4·91	2·24	7·01	11·81	3·58	3·96
Total	25·85	53·20	29·64	24·72	32·27	17·91	15·05
3.—LEGUMINOUS HERBAGE.							
Yellow or meadow vetchling	2·07	2·20	4·53	..	..	2·02	1·32
Common bird's foot trefoil	1·83	..	0·45	..	..	..	..
Perennial red clover	1·22	..	17·91	..	..	1·68	0·46
Total	5·12	2·20	22·89	..	..	3·70	1·78
4.—MISCELLANEOUS HERBAGE, CHIEFLY WEEDS.							
Rib-grass or plantain	10·79	0·41	..	0·09	..	1·96	8·25
Common caraway	1·71	..	0·78	0·28	..	1·62	1·72
Common milfoil or yarrow	1·34	3·58	0·48	0·28	0·59	0·22	1.78
Sheep's sorrel or dock	0·67	1·02	0·23	0·88	1·08	1·12	3·10
Catchfly	0·61	..	..	..	..	..	..
Crow-foot	0·49	1·13	..	..	..	2·02	1·58
Field wood-rush	0·12	..	..	..	..	..	..
Germander speedwell	..	..	0·22	..	..	0·11	..
Common yellow-flowered bed-straw, or cheese rennet	..	..	..	0·32	..	..	..
Total	15·73	6·14	1·71	1·85	1·67	7·05	16·43

The general conclusions at which the authors of this section of a very valuable series of trials arrive, are thus summed up :—

"1. That, whether the produce of hay be considerably increased by means of farmyard manure alone, farmyard manure and ammoniacal salts, or artificial mixtures of suitable mineral manure and ammoniacal salts, the proportion of the whole which will be *graminaceous* will be very much increased.

"2. That the produce will be by far the *most graminaceous* when the "*artificial mixtures*" are employed. In fact, when the increase of hay is obtained by artificial manures containing *both the necessary mineral constituents and ammoniacal salts*—and it is then greater than under any of the other conditions—both the *leguminous* and the *weedy* herbage are nearly excluded, and the produce is then, therefore, *almost wholly graminaceous.*

"3. That the *graminaceous produce itself,* when grown by *farmyard manure,* is less complex in character than that grown *without manure;* whilst that grown by the *most active artificial manures,* is *less complex still.*

"4. That, up to an equal period of the season, the *graminaceous* produce, grown by the *active artificial manures,* will be in larger proportion in *flowering and seeding stem,* than that grown *without manure;* and that the produce grown by *farmyard manure* will be in still larger proportion in that condition.

"5. That the *description* of the produce grown by *farmyard manure alone* was, upon the whole, superior to that grown *without manure.*

"6. That when the crop was further increased, by the *addition of ammoniacal salts to the farmyard manure,* the character of the produce was somewhat deteriorated, both in regard to the *description* of the *useful plants* grown, and on account of the large proportion of *miscellaneous* or *weedy herbage* then developed.

"7. That, when in a *mixed mineral and ammoniacal manure* the ammoniacal salts were *not used in excessive amount,* the herbage, which was then almost exclusively *graminaceous,* and comprised also but *very few species,* nevertheless, included a considerable proportion of grasses of recognised good quality. But, *when excessive amounts of ammoniacal salts were employed,* the character of the produce was deteriorated, both in regard to its *condition,* and to the *description of the grasses* that were developed."

The effect produced by these different dressings for grass land in these experiments is very interesting. We have here carried out a still more valuable, yet somewhat similar series of enquiries to those of Professor Buckman, on the results of irrigation upon the natural grasses of a meadow. The Professor's labours were directed to the results of watering the land; but the *object* was similar to those carried on at Rothamstead. In both cases the attempt was successfully made to ascertain the changes produced in the natural grasses of a pasture by artificial applications—solid dressings being employed in the one case, river water in the other. Of the experiments of Professor Buckman (*Journ. Roy. Ag. Soc.,* vol. xv., p. 462) I have elsewhere given a digest (*Farmers' Almanac,* vol. vii., p. 229). The Professor gives the following example of a meadow sloping to the banks of the Churn, near Cirencester, and notes the changes which have taken place since it was partially irrigated. This field has a subsoil of oolitic gravel. The following table gives—I., the name of the grasses; II., the proportional before irrigation; III., after two years'; IV., after four years' irrigation—

I.	II.	III.	IV.
Meadow foxtail.............	1	2	4
Field meadow	2	3	4
Roughish meadow	1	2	1
Quaking grass...............	2	..	..
Dogstail grass..............	2	1	..
Hassock grass...............	1	..	..
Marsh bent	1	2	3
Cock's foot	1	2	3
Yellow oat	2	3	3
Soft oat	1	1	1
Meadow barley	1	2	2
Perennial rye	2	4	6

These changes, continues Mr. Buckman, become evident where there is a gravelly subsoil; stiff clays, without there is a stratum of lighter matter, seldom succeed so well under irrigation. The changes which take place with the herbs of improved pastures is still more striking. The following table gives an instance of this. Column I. gives the trivial name; II., III., and IV., the proportional number before, after two years', and after four years' irrigation—

I.	II.	III.	IV.
Upright meadow crowfoot....	1	3	1
Bulbous crowfoot	3	1	..
Narrow-leaved plantain......	3	..	..
Dutch clover	2	..	..
Broad clover	1	2	2
Common beaked parsley	1	2	1

This field, it seems, trebled in value in four years.

These experiments are of considerable importance; for not only do they show that it is within our power to add, by certain dressings, to the produce of the grasses already existing in a pasture, but that the grasses themselves, by the soil being thus manured, may be changed—good kinds brought forth, and the growth of the inferior sorts discouraged. Such experimental enquiries give us, with far more precision, facts of which our forefathers were not altogether unacquainted. They could not but observe many of the changes in the grasses produced by some of the dressings to which I have alluded. They could not but remark that the difference between good and bad pastures is, in very many cases, merely the result of their cultivation. Instance, as Mr. Buckman remarks, a poor clay ameliorated; its list of grasses will not remain the same, or in the same proportions; on the contrary, bad grasses, which are ever present, to some extent, in every pasture, will either nearly all die out, or, if not so, they will greatly improve in quality; whilst many good ones, of which scarcely an example could previously be found, rapidly increase. And again, the many herbaceous plants, such as the broad-leaved plantain, common daisy, bulbous crowfoot, &c., give place to a growth of grasses. Facts like these, I repeat, former generations of farmers must have noticed; but they had not then the scientific accuracy necessary to reduce these observations to anything like an useful degree of certainty. The higher relative value of their cereal crops, in those days, indeed, made them more careless of their grass land; but a different state of affairs in our time naturally adds to our interest in everything that promotes the growth of food for our live stock. We may well, then, rejoice to see science at last well directed to those grass lands, for which hitherto so little has been done, as to well justify the observation, that "the grasses are nature's care." These experiments will, moreover, lead to others of equal, if not greater importance—researches not confined to the action of manures upon the natural grasses.

LECTURES ON PLANTS

Applied to Useful Purposes throughout the World, or otherwise fulfilling obvious offices in the Economy of Nature, commencing with those which are the Principal Objects of Cultivation, as furnishing Food, Fibre for Manufacture, Medicine, Colouring, Astringent and other Properties applicable to the Arts.

BY CHARLES JOHNSON, PROFESSOR OF BOTANY AT GUY'S HOSPITAL.

LECTURE I.

In commencing a course of lectures on a subject so extensive and varied as that now before us, it will be necessary to adopt some definite arrangement of our matter in order to avoid tautology, and at the same time to be consistent in its details. Carefully investigating the circumstances under which the results in question may be attained, two forms of such arrangement especially present themselves for our selection—firstly, that founded upon the application of plants or their products to corresponding purposes; secondly, that of classing the plants themselves according to their structural relations, or as constituting what are termed by the botanist *natural orders* or groups. Each of these plans possesses certain advantages which are wanting in its opponent, a condition that renders decision between the two somewhat difficult at the first glance, and open on either side to animadversion. The former certainly appears to be the more simple, and were a popular work to be written upon the subject, I might incline in its favour. The latter necessarily involves a certain amount of book-learning, as it is vulgarly called, and technicality; but, as a lecturer to the scientific student, I do not hesitate in awarding to it the preference. In the first place, the classification is more determinate; in the second, such orders or groups are readily distinguished by attention to a few general characters; and lastly, in the present instance, most of my readers are already acquainted with the leading facts upon which they are founded.

This being determined, we will commence our researches with an *order*, *group*, *tribe*, or *family* of the vegetable kingdom, which appears, from times immemorial, to have been the earliest in occupying the attention of mankind, and to have yielded from among its multitudinous species the first objects of agricultural pursuit. We will examine the history of the grasses, having first inquired what is meant by the term *grass*. In the language of the farm its signification is often a wide one, including many plants of other natural families subservient to similar purposes with the ordinary vegetation of the pasture; while the idea popularly entertained of a grass is associated with that of a plant having long, narrow, flat leaves, a slender upright stem, and terminal bunches or clusters of flowers, the latter composed of little chaffy scales, within which seeds are produced. Neither of these applications will suit our purpose—the former because it is erroneous; the latter as being too superficial for even general definition, although correct so far as it extends. Were we to include in our list of grasses all plants admitting of such description, a group of vegetation which under the more restricted limits allotted to it in science comprises very nearly four thousand known species would probably be extended to twice that number. A more lengthy and positive definition is required to include the essential characteristics of a true grass.

It must be premised that, however different in appearance may be the flowers of a grass from those of other flowering plants, certain features are common to all. The production of a flower is a necessary preliminary to that of a fruit and of seed, while the coming into existence of the latter is only effected by certain correspondent actions or functions of parts, without the presence of which no flower can be considered perfect, although other auxiliary, but less essential, organs of more conspicuous character may usurp, in vulgar estimation, the importance appertaining to the first alone, and with it the title of flower likewise. The wild hedge-rose is a perfect flower—its more prized and blooming sister of the garden a mere beautiful abortion ; the one is a fulfilment of the general law of Nature—the other an example of the degrading interference of man. To comprehend this, an elementary lesson and examination of the component parts of a flower are necessary.

A flower, in its fullest state of development, consists of four or more series of parts or organs. Externally we find the *calyx* or flower-cup, usually of a green leafy hue and texture ; such are the little green leaves at the back of the flower of a rose, and the long cup which contains the blossom of a polyanthus or a primrose ; the pieces composing a calyx are technically styled *sepals*. Within the calyx is the *corolla* or blossom, generally the most highly coloured and conspicuous portion of the flower, the pieces forming which are called *petals*. The calyx and corolla constitute the *floral envelopes*, and in the eye of the naturalist rank only as subordinate productions, requisite for protecting or assisting in the nourishment of the parts they inclose ; hence one or both of them are absent in many instances where such functions are unnecessary, or where they are otherwise provided for by differences in the general structure of the flower. Within the corolla are the *stamens*, varying in character, but usually consisting of slender thread or wire-like processes, termed *filaments*, bearing on their extremity a coloured body called the *anther*. The anther is generally divided down the middle by an indented line, marking its internal separation into two cells or cavities, which contain a fine dust or powder styled the *pollen* ; this is the male, or fertilizing apparatus of the flower, and consequently most important to the production of seed. The stamens vary in number, in the flowers of different plants, from one to several hundreds ; and they are either free—that is, fixed only by the bases of their filaments—or they may be united to the calyx, corolla, or some other organ. In the centre of the flower is the *pistil*, the lower part of which is the *ovary*, becoming afterwards the fruit or seed vessel. The tip or summit of the pistil is called the *stigma*, which in some instances rests immediately on the top of the ovary, while in others it is separated by a slender process rising from the latter, denominated a *style*. The pistil is in many flowers a solitary organ, but occasionally there are two or more, and sometimes, as is the case with the stamens, the number is very considerable. At a certain period during the development of the flower, the pollen is discharged by the bursting or opening of the cells of the anthers, and, being scattered upon the moist surface of the stigma, influences the production of seed-germs or *ovules* within the cavity of the ovary. In some flowers another series of parts occurs, occupying a place between the corolla and the stamens, and partaking of the character of one or the other of those organs ; such is the cup in the middle of the flower of a narcissus or a daffodil ; such are the rays in a passion flower : the name of *corona* is given to such appendages, and, where present, they afford valuable distinctive characters, but the function or office they may fulfil in the floral economy is unknown. As upon the reciprocal action of the stamens and pistils the production of seed is dependent, the presence of these organs, either together or separate, is sufficient to constitute a flower, and, as above stated, the others are often absent altogether. When the stamens and pistils grow separately, the flower is said to be *unisexual*, as in those of many of our ordinary trees and shrubs, oak, beech, birch, willow, &c. In some, both kinds of flowers grow upon the same tree or plant, as in the hazel, in which the catkins, so conspicuous in the early spring, are the male or stamen, bearing inflorescence ; while the female, pistil-bearing and nut-forming, are at this time only traceable in the form of buds with minute purple threads, the styles and stigmas projecting from their points. In other instances, these important organs grow upon distinct plants ; this occurs in the willows, the hop, &c., the plants of which are respectively male and female, barren and fertile. The unpractised observer will best acquire a correct notion of such differences by examining the contents and condition of some large flowers thus circumstanced, previous to his investigation of the more obscure. Any plant of the gourd tribe will furnish useful examples, as the common cucumber, the melon, pumpkin, or vegetable marrow, more especially on account of the conspicuous character of the ovary, or base of the pistil, and its relative position below the flower. The male and female flowers will be readily recognized by their contents, the stamens of the former being five in number, while the stigmas of the latter are only three. Beneath the fertile flowers the presence of the ovary or young fruit is distinguishable at the first glance, while no trace of such is seen beneath those containing the stamens.

Among grasses these peculiarities in the development of the reproductive organs are of frequent occurrence, though in the far greater number of the species the flowers are *hermaphrodite*, or bearing both stamens and pistil.

Dismissing this short analysis of floral structure, equally necessary to be borne in mind in our examination of other orders as in that of the one now before us, let us take the description of a true grass, as distinguishing it from any other grass-like plant, and I will give it, extracted, with some exceptions and additions, from my work on British Grasses.

Every grass, properly so termed, has its stems more or less cylindrical—never, at least, strictly angular—and divided by joints occurring at intervals throughout, the erect or ascending portion (the *culm* or straw) being almost universally hollow or fistular between the joints.

The leaves, which spring from these joints only, have the lower part, which corresponds to a flattened leaf-stalk, rolled around the stem, above the joint, in the form of a sheath; but the margins are not united, and it is thus capable of being unrolled without laceration. The upper, or spreading portion, the true leaf, is usually long, narrow, and tapering, and is always separated from its rolled stalk or sheath by a projecting membrane, or a collar of hairs or bristles—more frequently by the first, which is known by the name of *ligule*, from the Latin *ligula*, a spoon, scoop, or strap.

The flowers of the grasses present considerable variety in their arrangement. In some instances they are disposed in loose and more or less divaricated or spreading bunches, the inflorescence being collectively termed a *panicle*, as in the oat; while in others they form compact, rounded, or more frequently elongated masses, denominated *spikes*—see examples in the ears of wheat, rye, and barley. These flowers are always of a very different character from those of most other vegetable tribes, never presenting the bright hues, delicate textures, or symmetrical disposition of parts observable in those belonging to many of the higher orders of plants. The external accompaniments of grass flowers are small, dry, membranaceous scales, never arranged two or more on the same plane or level, but each occupying its own on alternate sides, being always inserted a little above or below each other, the lower one partially overlapping and inclosing the base of the one next above it—a disposition totally different from that of the sepals or leaves of a calyx, or the petals of a corolla. Hence neither of these forms of floral envelopes is considered to be present in grasses.

However closely crowded may be the flowers of a grass, they are always associated in little clusters called *locustæ* or spikelets; an arrangement readily seen by stripping those of an ear of wheat from the rachis or spike-stalk.

The outermost scales of a spikelet are termed *glumes*, from the Latin *gluma*, husk or chaff. Each spikelet has generally two glumes, but occasionally only one, and, in different grasses, they may contain one, two, or even several flowers. Each flower, considered apart, consists usually of two scales—rarely of only one—which are in most instances shorter and thinner in texture than the glumes; these are called *paleæ*, a Latin word of nearly similar signification with gluma. Arising from the back of the glumes or outer paleæ is frequently seen a peculiar bristle or hair-like process, denominated an *awn*, an appendage which in some grasses is of considerable length; such is the beard of the oat and barley. The paleæ often ultimately inclose the ripe fruit, becoming almost consolidated with its outer coat so as to be scarcely separable; this is the case in the common cultivated barley.

Within the paleæ we find the stamens, each consisting of a generally long and comparatively slender filament, bearing the anther transversely attached to its summit, upon which the latter turns as on a pivot, and is therefore said to be *versatile*. In many grasses the filaments are so long as to extend far out of the flower, and suspend the anthers, so as to expose them to every breath of wind. The number of stamens in each flower is usually three, but in some of the grasses of warm climates, as in the rice, there are six, and in others a greater number, which, however, is usually a multiple of three: in a few instances we meet with only one or two; the presence of the latter number is a leading character of distinction in the *Anthoxanthum odoratum*, the sweet-scented vernal grass of our own meadows, upon which the peculiar odour of newly-mown hay is chiefly dependent.

The centre of the flower is occupied by the pistil, which in the grasses is always solitary. The ovary, a small oblong or rounded body, includes only a single seed. As this organ is in most instances inseparable from the coat or skin of the ripe seed within, although in the latter state a true fruit, it is only recognized as being such by the botanist, the term seed or *grain* being that by which it is usually distinguished. Thus we speak of grass seeds and grains of corn, though, strictly considered, they are the fruit of their respective species. From the summit of the ovary generally extend two slender processes—the styles, which terminate, in more or less feather-like extremities, the stigmas. The styles are frequently connected at the lower part, and rarely only one is present.

Few of the grasses, belonging naturally to cold and temperate climates, have unisexual flowers; but among those of tropical growth we find many so circumstanced, the two kinds of flowers being often very different in appearance and in their relative disposition. We have a very familiar instance of this in the common maize or Indian corn, in which the male or stamen-bearing flowers are produced in a large panicle or loose and branched cluster at the top of the stem; while the female (fruit or seed-bearing) flowers form their thick, compact, and cylindrical spikes within the bases of the lower leaves.

Though exhibiting throughout a marked uniformity in the general structure, in a group of such vast extent and universal distribution, individual character may still be susceptible of considerable variation, and in no instance is such difference more strikingly exemplified than in stature. Many of the most diminutive grasses of elevated and cold regions scarcely exceed an inch in height, while the most magnificent of the tribe, the bamboo of India, sometimes attains more than a hundred feet. The erect stems of our British and other European grasses are only of annual, or, rather, summer duration; but among those of warmer countries, and especially of the larger kinds, are many in which they are perennial, or last from year to year, branching in each successive period of growth. A few even retain this habit under cultivation in the English garden; as *Arundo donax*, commonly called the European bamboo, *Bambusa aurea*, and two or three others capable of resisting the average winter cold of the southern parts of our island.

Whatever may be its size or duration, the grass stem is always proportionally slender compared with its elevation; but it is strengthened by a copious deposit of silica lodged in the exterior tissue, the quantity of this earth being often sufficient to maintain the form of the part to which it appertained, after removing all the vegetable substance by burning: the vitrified matter frequently left by the burning of hay or corn stacks is due to this circumstance.

The principal features by which a grass may be distinguished from sedges, spike, rushes, and other plants most nearly approaching it in general aspect, may be enumerated within a few lines, and close this introduction. They are—1, the rounded, jointed, and usually hollow or tubular stem; 2, the rolled, sheathing, but not tubular leaf-stalks; 3, the presence of a ligule at the base of the leaf; 4, the transverse position of the anthers.

The nearest approach to grass structure will be found in the sedges and spike-rushes, in which the stems are ordinarily *triangular*, *jointless*, and *solid;* the leaf-stalks or sheaths, *tubular;* the ligule, *absent*; and the anthers *continuous with the filament*, never either transverse or versatile.

WAYLAND AGRICULTURAL SOCIETY.

MEETING AT WATTON.

The Wayland Agricultural Society, established some three years since by the energy and public spirit of the district, in accordance, we believe, with a suggestion from Mr. Henry Woods, the steward of the Merton estate, has attained, in what may be considered its period of probation, a success rarely experienced in similar trials. Within the last five or six years another association has sprung up, and kept firmly on its legs, in a second part of Norfolk—to wit, the fine agricultural district of North Walsham, and every season seems to promise a longer lease of existence. The secret of this success is probably to be found in the free and open principles on which the new associations are based. They seem to be strictly farmers' clubs. Stock appear at them in—if one may use the expression—a work-a-day dress, and things are managed a little more *au naturel* than in the county association. This society deserves, no doubt, to be spoken of with all respect; the motives of its managers are, no doubt, excellent; its past history has been a creditable one; but still one cannot exactly help coming to the conclusion that the farmers of the county "fight shy" of competitors at its shows. They like to engage more with one another at home; and hence, while the Wayland meeting had no existence in 1856, in 1857 its entries numbered 232, increased to 269 in 1858, and reached the very respectable total of 367 in the present season.

Wednesday was selected by the society for its field day, and great pains were taken to enhance, if possible, the *éclat* with which last year's meeting went off. But there was one drawback. A wet morning struggled into a decidedly moist day; and it has been remarked by that high authority, *Mr. Punch*, that Englishmen can stand fire better than (rain) water. It rained, rained, rained steadily till about one o'clock p.m., when the elements seemed to combine for a final effort, and the address of Lord Walsingham to the labourers—recipients of the society's rewards—was delivered amid a shower of drizzling drops which squeezed their way somehow through an ominously flapping tent. The skies afterwards cleared a little, and the afternoon was tolerably fine; but the mischief was done, and an anticipated attendance of 2,000 to 3,000 dwindled down to a few hundreds.

It need scarcely be said that under these discouraging circumstances the show-yard did not present the cheerful aspect which it would otherwise have worn. The place of exhibition was a field, placed at the disposal of the committee by Mr. Massey; and the horses and stock were ranged round the four sides, the sheep and pigs occupying the centre. There was a fair show of horned bulls, but in polled bulls the entries were meagre; and no prize was awarded, on the ground of insufficient merit. In the former class Mr. John Sewell carried away the prize with a handsome well-conditioned animal, 2½ years old, bred by Mr. Ollard. Mr. T. Matthews, sen., was the successful competitor in the horned cow class. The cow entered by Mr. H. Oldfield was highly commended, and that shown by the Rev. W. H. Parker was also commended. The prize for the best polled cow was awarded to Mr. J. Marsh, while Mr. William Sutton's entry was commended. In heifers, Mr. Wyrley Birch took the prize in the horned class, while Mr. G. Jacobs was commended; Mr. Henry Stebbing was the most successful in the polled breed. A few calves were entered, and the prize was awarded to one shown by Mr. T. Wrightup; while Mr. W. Back's was commended. The animals shown in these classes were nearly all bred by the exhibitors, and were taken from their homesteads to the meeting a the consequence was that a few of the cows seemed ; trifle out of condition, the hip bones standing out in unpleasant prominence in one or two cases. A well filled-in animal certainly strikes the eye more agreeably. There were five pairs of working Devons on the ground, and Mr. J. Tingey carried off the prize. Near these were some fine fat beasts, especially a splendid animal shown by Mr. R. Dewing. The massive yet symmetrical and well-clothed proportions of this beast at once marked him out for the prize. Mr. John Allday was highly commended, and Mr. John Tingey commended in this class. A pair of twin heifers, 15 months old, shown as extra stock by Mr. W. Reeve, were also highly commended. The number of horses entered was large, and made quite as good an appearance as at the county show. Considerable attention was devoted to "Roland," a fine thoroughbred stallion, twelve years old, exhibited as extra stock by Mr. Castendieck. This beautiful fine-actioned horse took the first prize at Windsor, and also obtained a £25 prize at a recent meeting of the Manchester and Liverpool Agricultural Society at Wigan: while a cup would have been awarded to him on the present occasion if there had been a class for thoroughbred stock. Lord Walsingham offered a special prize "for the best animal or pen of animals in the yard;" and the award was made in favour of Mr. S. Gayford's hackney horse, which also took a prize offered by the Rev. W. H. Hicks, "for the best hackney mare or gelding for saddle or harness purposes." This horse, which is eleven years old, competed closely last year for the general prize with a grey stallion shown by Mr. Tingey; he possesses considerable merit as a hackney and hunter, having great power and good easy action. There was a nice class of hackney ponies under fourteen hands, and three excellent hackney stallions; in fact, the class of hackneys was generally well represented. This is an encouraging circumstance, as the complaint of late years has been that the good old Norfolk hackney is going out of fashion. A Welsh stallion-pony, bred by Mr. David Havard, and shown by Mr. Kersey Cooper among the extra stock, was commended by the judges, and attracted a good deal of notice. This pony, "a horse in miniature," was exhibited at the late meeting at Warwick. The remark made as regards the bulls and cows applies equally to the horse stock, by far the greater portion of them being home-bred. The cart stallions and mares seemed deserving of commendation equally with the hackneys, and the class of cart foals was especially praised by the judges. The prizes awarded were distributed as follows: Mr. J. Tingey, for the best cart stallions (Mr. W. Back commended); for the best cart colt or filly not exceeding three years old, Mr. T. Matthews, sen. (Mr. J. Warman highly commended); for the best cart foal, Mr. J. Tingey (Mr. W. Parsley highly commended); for the best cart mare, special prize, Mr. J. Tingey (Mr. R. Dewing highly commended, and Mr. R. Salmon commended); for the best cart gelding, special prize, Mr. J. Allday; for the best pony under fourteen hands, special prize, Mr. J. George (Mr. T. K. Gayford highly commended, and Mr. J. Fergusson commended); and for the best hackney stallion, special prize, Mr. J. Warman (a horse shown by the executors of the late Mr. R. Beart commended). The sheep were generally commended, the lambs especially coming in for warm praise. Lord Walsingham did not put in an appearance, thus leaving the field open to the farmers of the neighbourhood. The favourite pens were cross-bred, between Downs and Leicesters, a combination which seems to be popular in the district, as securing a maximum both of wool and mutton. The town of Watton offered a special prize for the best ten brown-faced flock ewes (not Southdown), and in this class there was also considerable competition; the prize was awarded to Mr. T. Matthews, jun., and the pen shown by Mr. R. Dewing was commended. The other prizes were thus distributed: For the best shearling ram, Mr. W. Back (Mr. J. J. Wing's and Mr. T. Wrightup's rams commended); for the best ram of any age, Mrs. E. Brassnett (Mr. J. Sewell, commended); for the best five shearling ewes, the best five ewes of any age, and the best five fat shearlings, Mr. T. Barton (Mr. R. Webb's and Mrs. Brampton Gurdon's ewes of any age commended, the former highly); for the best five shearling ewes of any distinct breed, special prize, Mr. T. Barton; and for the best ten lambs, special prize, Mr. T. Barton (the class generally commended). The pigs did not attract much notice. Mr. Gurdon carried away the prize for the best boar and breeding sow; the Rev. W. J. Partridge for the best litter; and Mr. W. Parsley for the best fat pig.

There was a very large and excellent show of roots, comprising long and globe mangel-wurzel, swedes, and white turnips. The mangel and swedes appeared particularly sound and good. Bronze medals were awarded in this department, cups and pieces of plate of more or less value being distributed in the other classes. Mr. H. Oldfield took the prize for mangel; several other exhibitors, including Mr. Walter Matthews, the Hon. Mr. de Grey, and Mr. J. Tingey, being commended. Mr. J. Warman was victorious in swedes (Mr. Barton and Mr. Rook commended); Mr. Robert Oldfield was awarded the medal for the best six turnips of any other kind (Mr. Tingey commended); and Mr. Munnings was the prizeman for carrots. In a tent close by, a collection of gourds (some of them of astounding size and almost infinite variety), potatoes, plums, pears, apples, and garden produce was laid out; and prizes to the amount of £7 5s. were distributed. Lord Walsingham exhibited—although, of course, not for a prize—some remarkable gourds, one of them (the custard squash) being a recent variety.

There were a few implements at work. One of them, which was shown at Warwick, was lent for the occasion by Lord Walsingham. It was an apparatus for making straw-fencing, and seemed to do its work rapidly and effectively. To give solidity and strength to the fencing, sticks are woven into it at intervals, and wire is employed to bind the straw together; but tarred twine can also be used for the purpose. It was stated that a man and a boy could weave with the machine 20 yards per hour. The price of the apparatus, made by Mr. O. Maggs, of Bourton, Wincanton, Dorsetshire, was stated to be £16.

At one o'clock, Lord Walsingham proceeded to distribute a variety of prizes, varying from 5s. to £1 10s., to a number of deserving labourers and domestic servants. His lordship had a kindly word for each; and at the close, addressed to the party a few practical remarks. He said he was glad to find that there was no want of steady, industrious labourers in the neighbourhood; and he must confess that, after having had many opportunities of observing the labouring classes in other counties, he had always been of opinion that they were nowhere more handy in any work they were put to, than in Norfolk. At the same time, there were one or two things which he thought were scarcely so well done as they ought to be. He had always thought that the ploughmen of the neighbourhood were well acquainted with that department of agricultural labour; but he had heard a report that the late ploughing was not very good work. With regard to the stacks, although they were good in quantity and very respectable in quality, some of them leant a little on one side and some on another, which was not what it ought to be, as stacks should stand perfectly square and straight. Again he had seen stacks in which the thatch did not reach down to the eaves; and he should like to see the stacking of the district very much improved. The shepherds of the neighbourhood deserved uncommon credit for the number of lambs which they raised successfully. One man had reared 361 lambs from 245 ewes; while in some sheep districts in the West of England, they thought they did uncommonly well if they got a lamb to a ewe. In the case he had mentioned, the result had also been attained with the loss of only seven ewes. In another instance 350 lambs had been reared from 230 ewes, but there was unfortunately a loss of 22 ewes; and in a third case 242 lambs from 170 ewes, with the loss of only two of the latter. He thought he might say that there was, on the whole, some improvement in the condition of the labouring classes. The introduction of machinery had made an opening for every intelligent man, and the necessity for increased skill and ability had led to a corresponding remuneration. He had not heard that there had been any lack of men to supply those higher qualities which were required, and he trusted the cordial feeling which had long existed between employers and employed might continue.

THE DINNER

took place in the evening, in the Wayland Hall. Lord Walsingham presided; the Duke of Wellington, who has lately purchased an estate in the neighbourhood, supporting him on his right, and Sir R. J. Buxton on his left. There were also present Mr. Brampton Gurdon, M.P., the Hon. B. Grey, the Rev. W. H. Parker, the Rev. B. Edwards, and about 90 of the principal farmers of the neighbourhood. Mr. T. Barton occupied the vice-chair.

Several preliminary toasts were given, the "Army and Navy" calling up

The Duke of **Wellington**, who was loudly cheered. The noble duke counselled the restriction of each rifle company to 100 men, and deprecated the adoption of too fine uniforms. These conditions observed, the proposed volunteer corps would be of the greatest utility.

To the toast of the "county members"

Mr. B. **Gurdon**, M.P., responded, arguing that foresight as well as experience was an essential element in the composition of a good agriculturist, and that every effort must be made to meet the competition which prevailed in the agricultural and every other interest of the country—a competition which a man must be blind to suppose would not continue.

The Duke of **Wellington** proposed the health of the chairman, who expressed his acknowledgments, and observed that his connection, as president, with the Royal Agricultural Society—to which the Duke had alluded—was due to his association with poor land in Norfolk, and the attention which he had paid to it. He felt that he owed the honour also to the kindness of those friends who supported him in this object. He begged to congratulate the Society on the excellence of the show, although he regretted extremely the unfavourable state of the weather. The moment he went into the show field, it occurred to him that the animals shown were better than those exhibited last year; and he understood that the entries, which were more numerous, bore a very large proportion to those of the county agricultural society. But the Wayland Association was not a rival to the county society; its object was simply to show the kind of stock which was usually reared and fed upon the farms of the neighbourhood. It so happened, particularly with respect to sheep, that that stock was of a mixed breed. In the Royal Society of England, and in the Royal Society of the county, the stock was pure-bred; and nothing that he had ever seen had put him out of conceit with the pure breeds which were so ardently and anxiously cultivated. Nevertheless, he admitted that in the local system of sheep farming there was a great deal of good. In breeding first-crosses, no doubt they bred that which was extremely useful to the farmer, and which produced to the man of business in a most useful and practical manner a certain amount of money; but he would ask those present what would they do if they had not the pure breeds to resort to? If they had nothing but cross-bred sheep, their animals would by degrees so alter in their character, that they would hardly know what they had got. It was absolutely necessary that the pure breeds should be kept up, to supply them with the animals they wanted; but it was a most useful thing that they should have an opportunity of bringing forward the animals upon their farms, and he thought the result would be that, either in the shape of cross breeds or pure breeds, they would produce better animals. A man might think that he had a very decent sort of animal at home, but when that animal was shown by the side of others, he would possibly not look the thing, and his owner would then go back, and determine next year to have something better. Whether this would eventually lead to purer breeds he would not say, but certainly he was not disposed to give up pure-bred animals; on the contrary, he intended, in this respect, to be more careful than ever. The noble lord shortly afterwards toasted "The Judges," who were—for horses, Mr. C. Bloomfield, Hockwold-cum-Wilton, near Brandon, and Mr. J. Smith, Crownthorpe, near Wymondham; for cattle, sheep, and pigs, Mr. John Clarke, of Long Sutton, Lincolnshire, and Mr. H. Overman, of Raynham, near Rougham; and for roots, Mr. T. Pooley, Northwold, near Brandon.

Mr. **Clarke** responded. The show, he said, had been to him an unexpectedly large one; he certainly had not anticipated such a number of respectably-filled classes. They all knew what judges' speeches were made of. They generally commenced with a sort of commendation of the show; that to select individual specimens would be invidious; that if there had been any error at all, it was of the head and not of the heart, and so on. But he might honestly say, that some of the animals shown during the day were fit to go anywhere. His colleague and himself had found a most excellent shorthorn cow, a most excellent shorthorn ox, some uncommonly good ewes, lambs, half-bred sheep and many others which he might enumerate. Upon one point, however, he would just say a word. One of the classes had not been considered of sufficient merit to receive a prize. The judges were as liberal as they fairly could be; but they really did not think that either of the two polled bulls ought to receive a prize. There was one particular prize which the judges almost smiled at—viz., that offered for the best animal in the yard. They hardly knew how to compare a pig, horse, or ox together; and they could only judge relatively, and look out for the best animal of its kind in its class. If a horse was the best animal in the horse-class, over and above what a cow was in the cow-class, they awarded it the prize. Their decision had been given in favour of a very superior hackney horse; and he believed they had acted satisfactorily to all. He did not wish to be at all egotistical; but he might state that he had the honour, at the Chelmsford, Salisbury, and Chester meetings of the Royal Agricultural Society, of acting as a judge of the best application of steam-power to the cultivation of the soil; and, if it was thought desirable that he should do so, he would just say a word or two on the subject. He certainly entertained a very high opinion of steam-power as applied to cultivation; and he thought that, ere long, steam was destined to do pretty much for agriculture what it had done for manufactures, commerce, railways, and so on. They must not expect to do much with it just yet; but he thought the apparatus for its application was gradually improving, and that ere long it would assume a shape in which it would be possible to make great use of it. He believed it would be very useful indeed on light lands, as it would render agriculturists independent of wet seasons; and on deep soils and heavy clays, he thought it would also be of very great value—indeed, he fancied it would effect a complete revolution in the culture of such land. He was one of the judges at Lincoln, where Fowler's steam draining apparatus was first exhibited; and he believed this was the forerunner of steam cultivation. In laying its tiles 4 feet deep in tenacious soil, this machine moved the earth 4 or 5 feet on each side, thereby opening a space for the water to percolate through to the drain beneath. Now, on heavy clay lands, a great drawback to subsoil-draining would be thus obviated. You might subsoil-drain heavy clays; but the water would not find its way down, as it would with this improved implement. He had sometimes thought it would be advisable, with a piece of heavy clay land, to first cross it with this plough, and then lay the drains: a complete drainage would thus be at once secured. There were many other leading agricultural topics, such as the application of reaping machines to harvest-work; but he would not say anything about them now.

The **Chairman** said the meeting must be much obliged to Mr. Clarke for his observations on steam-ploughing, as he spoke on the subject with authority and knowledge. He had himself ventured to say, nearly 15 years ago, that farmers would live to see their land ploughed by steam. He was laughed at for saying this; but he remembered making the observation at one of the meetings of the agricultural society for the North Riding of Yorkshire. He ventured also to make another prediction which had certainly not been yet accomplished; but he felt confident that the day would come when it would also come to pass, when the labouring classes would sit down to a dinner of meat every day. This was an improvement which he was very anxious to see, and he thought that in the Wayland district a great deal more meat was eaten now by the labouring classes than they consumed ten or fifteen years ago. He trusted, however, that they would not stop where they were at present, but that the time would come when they would sit down to a meal of meat every day. With respect to steam-ploughing, he did not feel himself competent to give any decided opinion. No doubt it had very much improved; but he could not yet see his way to recommending farmers to adopt such an expensive mode of cultivation without feeling more certain than he did that it had arrived at that sort of perfection that it would answer economically. Although he had seen statistics and calculations showing that it must pay, he himself could not see his way to it, and he thought one of the great difficulties was the constant breaking of the ropes and machinery. In a place like Watton and the neighbourhood the expense of sending for engineers to mend the machinery would add very materially to the calculated expense of doing the work. With respect to another observation made by Mr. Clarke, he had for some time felt that it was a very difficult thing indeed to determine the best animal or the best pen of animals in a showyard; although he was supposed to give a prize for this object, he was never satisfied that it was a point which could be satisfactorily decided. On the present occasion, the decision had been given in favour of a most useful and excellent animal, and the prize could not have been awarded in a more satisfactory way; but it was a sort of prize not attempted by greater societies, and he thought perhaps the present association was undertaking too much in endeavouring to give a decision upon such a point.

The "Officers of the old Wayland Association" (now merged in the new society).

Mr. **Barton**, whose name, together with that of Mr. Massey, was associated with the toast, replied; and with reference to the show of stock, observed that he thought it was one of which the district might well be proud. He agreed with the remark made by Lord Walsingham in regard to animals bred by a cross between pure Downs and long-woolled. Three years ago it was said he (Mr. Barton) won a prize for his lambs because he trimmed them; but this year he had not trimmed them, and the result had still been the same. With regard to the fat wethers, the remark of Lord Walsingham was borne out; for while they could breed animals of such size and weight from pure Down ewes, they need not go to the black or brown-faced ewes. He had sold his at £4 each, and got twenty shillings' worth of wool from them besides; and he thought this was very well, especially as he had not lost any.

Mr. S. **Gayford**, in responding for the "Successful Candidates," said if the forefathers of those present had been told that the once-barren Wayland district would have produced such a show of animals as had been exhibited during the day they would scarcely have believed it. The district was much indebted to Lord Walsingham for the example he was setting. He had known Lord Walsingham's estate forty or fifty years, and he was glad to say that all feudal clauses were now removed from the tenants' covenants. It was useless to convene agricultural meetings and exhibit cattle, if the farmers' hands were tied and fettered so that they did not reap the full produce of the land they farmed. Formerly he would have defied any man in England to have farmed a considerable portion of Lord Walsingham's estate, as it was so overrun with hares and rabbits; but now he was happy to hear that this was not the case. England had now to expend vast sums annually in the purchase of foreign corn, and surely it would be much better if this money could be kept at home. How was this to be effected? Let the farmers have their hands unfettered, and their productions would be largely increased. There was now an air of comfort about the Merton estate, and he believed the noble owner's own labourers had now the good meal of meat once a-day which his lordship wished them to have. He (Mr. Gayford) should like to see the day when, in addition to the meat, they might also have a pint of good beer.

The **Chairman** said Mr. Gayford's remarks had afforded him much pleasure. He had spent a great deal of money, with the view of improving his estate, and he believed he had done so with some success. The land was certainly at one time wretchedly overrun with rabbits, which afforded him some sport and did him no good; but on the 3,000 or 4,000 acres which were once in their possession, there were now as fine flocks of sheep as could be seen in any part of the country (cheers).

Mr. **Woods**, in reply for the "Secretary," said, looking at the results which had attended the effects of the society, he felt proud of being associated with it. The results of good breeding were not merely accidental, but were based on mature judgment, experience, and foresight, by exercising which a farmer might not only expect, but almost demand, success. Mr. Woods, in conclusion, made an able appeal for increased support to the society from the commercial class of the district.

Sir R. J. **Buxton** replied to the toast of the "Strangers," with some general observations on the necessity of union and good feeling between employers and employed, which he contended such societies as the present encouraged.

THE SHORT SCYTHE *v.* THE REAPING MACHINE ON HILLY GROUND.—At the South Tyne Meeting the Hon. H. G. **Liddell**, M.P., the chairman at the dinner, in proposing "Success to the South Tyne Agricultural Society," made the following important and practical remarks:—"Now there are only one or two observations that I would venture to offer in the course of these few remarks, and I tender them not by way of advice, for that would be presumptuous, but rather as a suggestion to be taken for what it is worth. Viewing, as I do, the progress that agriculture has made of late years—and there is perhaps no branch of industry in which greater progress has been made—it seems to me that there is little, if any, limit to be placed to the extent to which the farmer can increase his productions, barring always that which nature herself imposes in the liability that your heavy crops have to be injured by heavy storms of wind and rain. But there is a limit, and it appears to me to be a growing want, likely to be placed to your means of cutting your harvest. You can no longer depend, as you formerly did, upon bands of Irishmen; and that for two reasons. In the first place the supplies of labour from Ireland have been conveyed to other and more profitable fields across the Atlantic; and in the next place Ireland has become a highly productive country herself, and there is pretty general employment in Ireland. Consequently, I say, we cannot look there for the same amount of hands that we formerly were in the habit of receiving for collecting our harvest. The ingenuity of men have done somewhat towards supplying by machinery the want of labour in cutting corn, and with all due deference to the exertions of ingenious inventors of reaping machines, this instrument still remains somewhat cumbrous and complicated in its machinery, and consequently somewhat liable to get out of order; and I think there are certain natural circumstances which must necessarily prevent at all times the use—the efficient use—of this implement for the purpose of collecting the harvest up and down over hill sides in the north of England. It is all very well on a flat plain; but depend upon it the reaping machine will be a failure where the ground is very much tossed up, and the hill sides very steep. But there is an implement—and I refer now to the short scythe—to which I think we may look with confidence as the implement to employ in gathering the harvest; and I am quite sure I need not remind those who are acquainted with it that the use of this implement is as yet but imperfectly understood. I cannot help thinking it might be a very useful thing in some of these local societies to offer prizes for the best handler of the short scythe; and I think, and have always thought, it a very valuable feature in these local societies to spread among the ranks of the labourers themselves that same energy, that same activity, that same rivalry, which you have already produced in the classes of the tenant occupier. Depend upon it, gentlemen, if you can can give the labourer an interest in the work he has to do, he does that work better. You identify his interests with those of his employer. You elevate the mind of the labourer—you practically shorten his hours of labour when you excite in his mind an interest and a pride in the mode in which his work is done. Now, I am so strongly impressed with the importance of encouraging the use of the short scythe, that I feel very much disposed to consult with the Secretary of our Northumberland Society, and myself offer a small prize another year for the best performer with that most valuable implement."

RIPLEY AGRICULTURAL SOCIETY.

The eleventh annual exhibition of this flourishing society took place Tuesday, September 20, in Ripley Park, by permission of the Rev. H. J. Ingilby.

The following gentlemen officiated as judges: For cattle, sheep, and pigs: Messrs. T. C. Maidens, Spilsby; F. T. Wetherill, Elmet, Durham; and C. Wright, Tadcaster. For horses: Messrs. T. Stafford, Marnham; R. Smith, Windermere; T. Parrington, Middlesbro'. The following is their

AWARD OF PRIZES.

Best bull of any age, first, I. T. Shutt, Harrogate; second, R. Watkinson, Hartwith.

Best two-year-old bull, first and second, Mr. Nicholson, Givendale Grange.

Best yearling bull, first, John Greenwood, Esq., M.P., Swarcliffe Hall; second, R. Walker, Darley.

Best cow of any age, first, Mr. Sharp, Ripley; second, Mr. Plews, Skelton.

Best three-year-old heifer, first, Rawdon Briggs, Esq., York; second, Mr. Peacock, Haddock-stones.

Best two-year-old heifer, first, Mr. Yeates, Studley; second, Rev. S. H. Powell, Sharrow Lodge.

Best yearling heifer, first, T. Clayton, Stainley House; second, George Tinsley, Staveley.

Best two yearling steers, first, Rev. H. J. Ingilby, Ripley Castle; second, Mr. Stead, Bishop Thornton.

Best dairy cow of any age, first, T. Dearlove, Killinghall; second, T. Ireland, Scotton.

Best three-year-old dairy heifer, I. Wood, Scarth.

Best two-year-old ditto, F. Smiddy, Ripley.

Best aged ram, first and second, I. Simpson, Spofforth Park.

Best one-shear ram, first and second, I. Simpson.

Best tup lamb, first, W. Smith, Burton Leonard; second, I. Simpson.

Best four ewes, first, I. Simpson; second, W. Walker, Goldsbro'.

Best four shearling gimmers, first, I. Simpson; second, T. Hannam, North Deighton.

Best brood mare for agricultural purposes, first, I. T. Shutt; second, Mr. Peacock.

Best brood coaching mare, first, B. Dearlove; second, Mr. Harrison, Fountains.

Best brood hunting mare, first, Rev. S. H. Powell; second, T. Wilkinson, Cayton Hall.

Best brood roadster mare, first, Mr. Plews, Skelton; second, Mr. Ridsdale, Water Gate.

Best roadster of any age, first, Mr. Ridsdale; second, T. Hullah, Bishop Monckton.

Best pair farm horses, first, T. Clayton; second, R. Atkinson, Hartwith.

Best three-year-old hunting filly or gelding, first, Mr. Thackray, Dorking Bush; second, R. Teasdale.

Best two-year-old ditto, first, T. C. Wilkinson; second, Mr. Kirk, Westwick.

Best one-year-old hunter, first and second, J. Kirk.

Best three-year-old coaching filly or gelding, first, R. Waddington, Goldsbro'; second, Mr. Carr, Harewell Hall.

Best two year-old ditto, first, T. C. Wilkinson; second, R. Waddington.

Best one-year-old ditto, first, R. Lewis, Markington; second, T. Clayton.

Best three-year-old filly or gelding for agriculture, first, W. Walker; second, Mr. Plews.

Best two-year-old ditto, first, I. Parker; second, T. Harland.

Best one-year-old ditto, first, J. Dury, The Moss; second, I. T. Thackray.

Best colt or filly for agriculture, first, W. Smith; second, I. Dury.

Best coaching ditto, R. Batty, Wormald Green; second, J. Houseman.

Best hunting ditto, first, Rev. S. H. Powell; second, J. Greenwood.

Best boar, small breed, first, Mr. Mangles, Givendale; second, J. Dury.

Best boar, large breed, first, Rev. H. Ingilby; second, George Cirbetson, Stainley.

Best ditto, under six months, first and second, T. Blake.

Best small breed sow, T. Harland.

Best small breed gilt, first, Mr. Mangles; second, J. Rhodes.

Best large breed sow, first, Mr. Sharpe, Ripley; second, George Cryer, Brimham.

Best large breed gilt, first, John Iveson second, T. Blakey.

Best store pig, first, T. Blakey; second T. Dearlove.

Best cottager's pig, who keeps a cow, first, R. Scott, Haverah Park; second, S. Broadbelt, Ripley.

Best ditto, who does not keep a cow, first, M. Pearson, Ripley; second, T. Morrell, Ripley.

£10 for the best hunter, of any age, was given to W. Ingilby, Ripley Castle.

Silver cup for the best four-year-old hunter was awarded to J. J. Harrison, Harrogate.

RESULTS OF THE HARVEST IN FRANCE.

The results of the harvest in France are by no means matter of little interest to the farmers of the United Kingdom. On the other hand, the proximity of the two countries, and the commercial relations existing between them, render the question of a good or a bad crop in France an important matter with us all; and this importance is heightened by the inequality of the laws regulating the importation of grain. For whilst we admit it at all times and seasons at a nominal duty, the old sliding-scale is again in full operation in France; and at this time acts as a prohibition, the price, in defiance of the law, being low enough to ensure a duty that bars all importation.

As was the case in England, the harvest in France occurred this year from a fortnight to three weeks earlier than usual, but the unprecedented scarcity of hands prevented the farmers from beginning as early as they could have wished. It has been a practice of the French Government, through the Minister of War, to authorize the generals commanding in the several departments to place a certain number of the troops at the disposal of the farmers who may require them. This year, owing to the war in Italy and the threatening appearance of things in Germany, they were deprived of this resource until the harvest was nearly finished. Another means, however, was afforded for relieving the labour market, to a certain extent, in the large number of Austrian prisoners, who, by an official decree of the date of the 6th of May, authorized the police to cause these men to be employed in agricultural and manufacturing employments, under certain regulations, obligatory both upon the farmers and the employed; securing to the latter a supply of the necessaries of life, but also effectually preventing them from making their escape. It also fixes their pay, in addition to their board, at not less than 40 centimes (4d. English) per day.

Still, notwithstanding this new resource, the harvest dragged on heavily, and a great deal of the corn was shelled and lost for want of being cut in proper time. In addition to this, the storms had been heavy and general, and the corn was lodged in every direction, making the cutting still more difficult and tedious; whilst the excessive heat and the burning sun had prematurely ripened the grain, and thus deteriorated the quality, as well as lessened the yield. The bulk of the wheat, in the number of sheaves, was larger than usual; but they were found to be light in hand, and far from promising an average yield; and the apprehensions entertained were confirmed by the test of the flail or thrashing machine in several districts. In Saône-et-Loire, l'Aisne, and l'Oise, it was found, on thrashing, that the deficiency amounted to one-third of the average, whilst the grain itself showed a marked inferiority in quality to that of the average of years, owing to the two causes we have mentioned above; and this applies as well to the north as to the south of France, the three departments we have named belonging to the north. The south, however, was, if anything, in a worse condition still, the drought and heat having been much more severe there. The lightness of the grain will reduce the quantity of flour produced from it at least by four pounds per bushel, which upon the average crop of France (25,000,000 qrs.) amounts to nearly 1,700,000 sacks of flour. The deficiency in the crop of wheat, if it amounts to one-third (8,333,333 qrs.), is a more serious affair.

In a letter addressed to the "Journal of Practical Agriculture" (French), by M. Leonce de Lavergne, on "Good and Bad Harvests," the writer gives the following statement of the wheat crops in France in twelve years—

1846....	60	million hectolitres, or	20,634,000	qrs.
1847....	97	„	33,358,300	„
1848....	88	„	30,263,200	„
1849....	90	„	30,951,000	„
1850....	88	„	30,263,200	„
1851....	86	„	29,575,400	„
1852....	86	„	29,575,400	„
1853....	63	„	21,665,700	„
1854....	97	„	33,369,212	„
1855....	73	„	25,104,700	„
1856....	85	„	29,231,500	„
1857....	110	„	37,829,000	„
		Average .. .	29,318,384	„

This gives an average of nearly 30 million quarters of wheat per annum; but it is probably exaggerated, as most of such estimates are. What the writer endeavours to impress on the public mind is the enormous difference between a good and a bad harvest, the latter still more aggravated by the necessity of abstracting from it the same quantity of seed wheat for the ensuing crop as from the former. This he estimates at 13 million hectolitres, or 4,470,700 qrs. The deficient harvests of 1853 and 1855 produced a scarcity, amounting to a famine, in the south and centre of France; and this was hardly made up by the superabundance of the crop of 1857, which, when the seed-wheat was deducted from each crop, was nearly double that of 1853, as thus—

1853....	63,000,000	1857....	110,000,000
Seed....	13,000,000	Seed....	13,000,000
	50,000,000		97,000,000

It was chiefly owing, however, to a large increase of wheat culture that the crop of 1857 proved so much greater than the average. This was stimulated by the previous high price, and it was said to have amounted to 383,000 hectares (936,000 acres). Still the yield that year was unprecedentedly large, and followed as it was by a full average in 1858, has left a large surplus on hand, which will probably prevent prices from rising in that country to any considerable extent until the spring of next year, when the deficiency of the late crop will begin to be felt.

It was unfortunate for the French farmers that the trial of reaping-machines at Fouilleuse took place at so late a period; but their success has been hailed with great satisfaction. It is probable that every farmer who can spare the money, or whose occupation is large enough to warrant the outlay, will, before another season, furnish himself with one of these machines, which are, beyond all doubt, the most economical and useful that have ever been invented. But not only in France has the want of hands for harvest-work been felt; it has been equally so in England, and in future no farmer ought to neglect supplying himself with the means of remedying the deficiency. We believe that the loss to the farmer, from the corn remaining uncut after it was ripe, was very great, probably amounting to more than was required for seed for the ensuing crop. Reaping and mowing are the most arduous and laborious of the harvest operations, as well as the most tedious and expensive; and a machine that will supersede hand-labour in their performance, ought to be hailed with joy by both master and man. The latter will find his labour lightened and the period of harvest shortened by the American reaper; whilst, in addition to these advantages, the farmer will have the satisfaction of being able to secure his crops at the proper time with the ordinary staff of the farm.

Recurring again to the harvest in France, M. Barral, after stating the results of thirty-five districts, says: "In recapitulation, the advices of the state of the crops are not generally unsatisfactory. The wheats, being much laid by the storms, will not yield an average return. The sheaves are numerous, but very light. Almost everywhere the hay harvest is abundant; the oats are fine; the potatoes generally diseased; the colza various; the clovers good; the linseed perfect; the beet-root promising; the vines loaded with fruit in the north, but deficient in the south; the fruit-trees will yield nothing."

HOW DROUGHT BENEFITS THE SOIL.

"Dry and hot! Hot and dry! How much everything suffers for the want of rain!" exclaims the farmer, as the empty clouds melt, day after day, from his sight. And it is a sad scene now presented in many places in the country. We need not recall it for our readers—we would rather invite them to a brighter side of the picture. That seasons of drought—so often occurring, and so injurious to our summer crops—should still prove beneficial to the soil, seems strange, but chemical science shews us that droughts are one of the material causes to restore the constituents of crops, and renovate long cultivated soils. The "why and wherefore" of this, we may here reproduce, condensed from a paper by Prof. HIGGINS, Chemist of the State Ag. Society of Maryland.

The loss of mineral matter from the soil, results from the fact that it is taken up by the growing crops, and also carried away by the surface-water flowing into streams, and thence into the sea. These two causes are always in operation, and were there no sources of supply, would in time render the earth a barren waste. The diminution which arises from continued cropping, is in part restored by manures, and the same is true of the constituents washed from the soil by surface drainage; but this supply is small, uncertain, and of limited application, and Providence has provided natural means to restore lost mineral constituents to our arable land. At intervals droughts occur to bring up from the deeper undersoil, food for the use of plants when the rains shall again fall to dissolve and bring them into action.

A drought acts upon the moisture in the earth as follows: During dry weather, a continual evaporation takes place from the surface soil, above that supplied by rain and dew, which creates a vacuum (so far as the water in the surface soil is concerned), that is at once filled by water rising from the subsoil—extending deeper and deeper as the drought continues and the moisture is exhaled—a circulation of water in the earth the reverse of that which takes place in wet weather. This progress to the surface of the water in the earth, manifests itself strikingly in the drying up of springs and wells, and streams which are supported by springs.

Not only is water thus brought to the surface of the earth, but also all that the water holds in solution. These are salts of lime and magnesia, of potash and soda, or indeed whatever the subsoil or top strata of the earth may contain. The water on reaching the surface is evaporated, but leaves behind its lime and potash, its phosphates, silicates, carbonates, and salts—all indispensable to the growth of the vegetable products of the farm. Rain water, as it falls, will dissolve but a very small portion of some of those substances; but when it sinks into the earth, it then becomes strongly imbued with carbonic acid from the decomposition of vegetable matter in the soil, and thus acquires the property of readily dissolving minerals on which before it could have little effect.

Several experiments tried by Prof. Higgins, go to show this action of drought in bringing mineral matters from a depth to the surface of the soil. In one case he placed a solution of chloride of barium in the bottom of a glass cylinder, and then filled it with dry soil. After long exposure to the rays of the sun, the surface of the soil was tested with sulphuric acid, and gave a copious preciptate of sulphate of baryta. Chloride of lime, sulphate of soda, and carbonate of potash, were experimented upon in like manner, and upon the application of proper tests, the surface of the soil showed their presence in large quantities, drawn up by the rising of water from underneath, as in the case of drought.

The parched earth—all vegetation dwarfed and withered by the heat—seems suffering under a curse, but it is only an affliction for the present—"a blessing in disguise"—for the future. "The early and latter rain" may produce at once abundant crops, but dry weather is needed to bring to the surface from the depths of the earth, where else it would be for ever unemployed, food for future harvests. It is Nature's ordinance for keeping up the fertility of the cultivated soil.

RAINFALL IN 1859.

It is much to be hoped that all parts of England have not been suffering so much from the want of water as we have been doing in Kent. For more than two years the rainfall here has been below the average, especially in the winter months. The consequence is, that all our wells, streams, and other sources, are unusually low, and many of them quite dry, while grass and other crops have merely been subsisting from shower to shower, on the scanty supply of moisture it then received. The evil is the greater in places where rain-water forms the only source of supply for domestic use; and as so many wells have gone dry, every quart of rain-water is valuable. It does not appear that the past summer has been so dry in the centre of England; as I was lately told, when on a visit to Oxfordshire, that they had had a rather wet summer, while farther west, in West Devon and Cornwall, the season had been one of unexampled drought. This is the more strange, as that district has been invariably regarded a moist one. In Kent, I believe we have less rain on the average than they have in most counties, Suffolk perhaps excepted. Annexed I give the rainfall of the present season, in conjunction with that of the last three years, by which it will be seen we have had an extensive falling off—

	1856.	1857.	1858.	1859.
January ...	1.82	3.13	0.79	1.61
February ..	1.12	0.27	0.77	1.17
March	0.99	1.27	0.80	1.66
April......	3.89	1.76	1.93	1.89
May......	4.08	1.06	2.16	2.22
June......	1.36	1.67	0.67	1.75
July	2.48	1.07	2.69	2.01
August....	2.03	2.93	1.20	2.12
September .	3.64	5.41	1.19	
October ...	2.09	3.12	1.45	
November..	1.58	2.15	0.77	
December..	2.71	0.49	1.91	
Total....	27.79	24.33	16.33	

The above gives the total rainfall in inches and hundredth part of inches; and we attribute the lowness of our springs to the extreme dry winter of 1857-58, and to all appearance it will be some time yet ere they be renovated, the water cart being seen everywhere. J. ROBSON.

Linton, Staplehurst.

WHEAT GROWING ON LOIS-WEEDON PRINCIPLES, BOTH EASY AND PROFITABLE TO THE FARMER.

The agricultural world is not yet out of debt to the author of the "Word in Season," so opportunely spoken in a time of falling markets and general despondency. The Rev. Samuel Smith, the vicar of Lois-Weedon, near Towcester, in Northamptonshire, published his novel method of "growing wheat with profit," in spite of low prices, now nine years ago, and had then thrashed his third harvest. For several years new editions of his pamphlet truthfully recorded his annual experience; then the little volume, "Lois-Weedon Husbandry," described to us his equally skilful and profitable practice with spring corn, green crops, roots, and grasses; and, lastly, a "sixteenth edition" of the original publication—rendered seasonable again by the late recurrence of a time of low prices and long faces—brings down the result to the last harvest. Yet, after no less than eleven years of satisfactory experience, Mr. Smith's example has been followed by comparatively few cultivators; and I bring the subject before the agriculturists of Great Britain in a somewhat new light, in order that a system so perseveringly and successfully carried out, and so modestly and generously offered for our benefit, may receive the practical attention which it deserves. Not that Mr. Smith claims to appear as a slighted and injured man, who has been devotedly ruining himself in experimenting for an ungrateful country; on the contrary, having reaped a handsome profit, he kindly and patriotically places his method at our disposal; and if we have been too timid or too proud to avail ourselves of his help, the loss is on our side and not his. The Lois-Weedon modification of the Tullian husbandry has not been protected by patent, and no farmer need pay a royalty for making use of the process. It has not been advertised day by day and week after week in newspapers and periodicals, till the farmer shall be worried into trying it; neither has it competed for agricultural societies' prizes, or pushed its way with handbills and pictorial catalogues. Probably a due amount of big-letter advertising, and well-got-up testimonials in favour of "the patent triple rows," or the "alternate stripes of fallow and crop," or the "double-spit digging," or the "combined method as described," would have attracted curiosity, and aroused experimenters to a considerable pitch of interest and excitement; but, as the Lois-Weedon plan of wheat growing with large profit has been modestly offered us, without any aim at self-interest, by an amateur or gentleman farmer, we are too diffident or too lazy to persevere in a few practical trials, judiciously adapted to suit our particular soil and circumstances.

There is time enough for farmers to reflect upon the matter, and, ere the next seeding-time arrives, to sound their landlords or agents upon their willingness to permit the commencement of experiments on a sufficiently broad scale. Do not lose this year; for consider what a tedious thing an agricultural experiment often is: you must have two or perhaps three years of patient cultivation and harvesting, before you get reliable evidence for your own satisfaction, and the inducement of neighbours to follow your method. I believe the time will come when everywhere we shall see the wheat-fields marked and beautified with Lois-Weedon stripes, just as commonly as we now see the sowing effected by a drill—the invention so long despised and ridiculed in its early days. But you need not fear to make a first essay in the present case, because it is not the ingenious failure, but the thorough and long success of the propounder, that appeals to your enterprize.

Now, however, to a description of the system. My remarks will be chiefly confined to practical details; yet, in order to a clear understanding of the processes employed, it will be necessary to look a little into the principles on which they are founded; and, indeed, I believe that most if not all the unfavourable attempts reported have failed from want of proper perception of the use of each step in this peculiar culture—some persons pouncing upon the notion of wide-drilling, and others supposing deep trenching to be the secret; and this notwithstanding that the whole matter is abundantly simple: it has been repeatedly elucidated, and its rules laid down most plainly by Mr. Smith; and the details of management are as easy, as sensible, and as free from tricks or nostrums as Mr. Rarey's mode of horse-breaking seems when once you know it.

Tillage, or the mechanical division of the soil, occasions an increase of its fertility; and stirring and pulverization of the soil about plants promote their growth. On these facts our venerated Jethro Tull (who combined "practice with science" long before the Agricultural Society chose its motto) founded his "Horse-hoeing Husbandry;" sowing his grain crops as well as others in rows, so that he might plough and cultivate between them. Thus he could wholly or partially feed their roots by opening up to them what he calls "the pasture of plants;" just as he had seen vineyards made to yield crops of grapes and wood in perpetuity, without any manurial restoratives being supplied, simply by deep and repeated tillage between the vines. We have profited by his teachings so far as some of our root and green crops are concerned; but for white corn we use Tull's ingenious machine that he named "a drill," only to facilitate the eradication of weeds, to secure a regular plant, to admit the breeze and the sunlight between the flaggy stems—not to provide room for tillage while the crop is growing. To be sure, our shallow horse-hoeings and hand-hoeings do invigorate the young plant; but deep and effective stirring and comminution of course require far wider intervals than the seven to ten inches generally thought indispensable for a yield. The fructifying of our wheat land by tillage, all takes place before the seed is deposited; and then for nine or ten months the ground lies undisturbed, receiving the rains and dews and melting snow, and the influence of frost and wind and sun, very partially and superficially; while we are unable to open up passages into the soil, and accelerate the introduction of all these agencies (except in the shallowest manner), as we do while other crops are growing and thriving by the treatment. Why, of all crops we should have supposed wheat to be most in need of tillage during its growth; for our climate requiring it to be sown in autumn, that it may get a sufficient start in spring to give time for filling and ripening the ear, there are many months longer than are taken by any other crop, in which the efficiency of the preparatory tillage may be lost, the fine particles of soil coalescing again, and excluding the atmospheric supplies of nutriment; so that long before the crop has reached maturity, or come to that critical period of the setting of the bloom and swelling of the kernel (when the plants need "good keeping," or will fail in fecundity), the land is almost as solid and impervious as it was before the seed-bed preparation began. Tull drilled wheat in double rows, ten inches apart, leaving intervals wide enough to plough and work in, and found that good crops could be grown year after year without manuring—of course sowing next year's crop in the intervals fallowed during this. His immediate disciples did not long prosper in the same experiment; but in an age of better implements, better workmen, deep drainage, and an insight into the merits of a subsoil properly used, and introduced into communion with daylight and fresh air, Mr. Smith has revived the practice with astonishing success, and an ample profit. Indeed, so far from wheat being found an exhausting crop, as compared with others under similar cultivation, eleven harvests have given him a large average yield of wheat grown without manure; while beans, mangolds, swedes, cabbages, and other produce experimented on have required the application of mineral and nitrogenous dressings.

Why tillage alone can maintain the fertility of a naturally good soil under a lengthened course of wheat after wheat, involves a long story; but the gist of the matter may be given in a few words. The crop requires two sorts of food. There must be present in the soil a sufficiency of certain "mineral" matters; and if each of these is not there in due proportion, the deficiency must be made up artificially, or the crop will not thrive. On Mr. Smith's clay land all the requisite ingredients exist in abundance: on his light piece, which is not proper wheat land, a dressing of clay supplied the known deficiency, and has hitherto satisfied the wants of many crops. To grow corn year after year successively, there must not only be a lasting stock of the crude "minerals," but sufficient quantities have to be chemically prepared and made available for each crop quickly enough to supply its wants while growing; and if tillage operations will not do this rapidly enough, manures must be employed to assist them. What prospect there is of our being able to feed successive wheat crops, by means of tillage, on proper "wheat land," I shall subsequently consider.

To show that Mr. Smith has plenty of indispensable "mineral" matter for his crops, I need only adduce a few items from the chemistry of the question. The average of his twelve crops gives a yield of 35 bushels of good wheat, and nearly two tons of straw, per acre. Well, a wheat crop of 35 imp. bushels, weighing 60lbs. per bushel, and 4,200lbs., or over 1¾ tons of straw, takes from the soil the following quantities of minerals, as deduced from 32 analyses of grain and 10 analyses of straw by Professors Way and Ogden.

	Grain.	Straw.	Total.
	lbs.	lbs.	lbs.
Silica	1.18	142.55	143.73
Potash....................	10.50	25.50	36.00
Phosphoric acid	16.00	11.55	27.55
Lime	1.19	13.00	14.19
Magnesia..................	4.25	5.70	9.95
Sulphuric acid.......... ...	0.112	8.10	8.212
Soda	1.35	1.26	2.61
Peroxide of iron, and loss	0.28	1.85	2.13
Chloride of sodium..........	0.042	0.46	0.502
	34.904	209.97	244.874

In Mr. Smith's clay land most of these ingredients exist in sufficient abundance to supply the wants of many thousands of such crops; and there is enough of those particular substances which are in smallest quantity (in proportion to the demand) to feed the successive wheat crops for many centuries. But as I wish to advocate the advantages of the system for loamy as well as strong lands, I will state what amount of these several substances we may expect to find in a common loamy soil; not a rich clayey loam, or yet with too large a proportion of sand for our purpose. The following actual quantities are calculated from an analysis of a loam containing 80 per cent. of silica, and 3½ per cent. of alumina; taking one acre of land 9 inches deep, as weighing (at 90lbs. per cubic foot), 2,940,300lbs., or about 1,312 tons.

	Lbs.	If the straw is returned to the soil, enough for
Silica	2,382,000	19,930,000 crops
Potash....................	23,522	2,240 „
Phosphoric acid	11,173	698 „
Lime	38,223	31,850 „
Magnesia..................	32,931	7,700 „
Sulphuric acid	2,646	23,600 „
Soda	44,104	34,000 „
Peroxide of iron..........	99,970	357,000 „
Chloride of sodium........	"trace"	abundance

If we take away both grain and straw without any return whatever, there will be sulphuric acid enough for 330 crops, phosphoric acid for 406 crops, potash for 653 crops, lime for 2,730 crops, and the other minerals in still larger profusion. Thus the only substances that a long-continued series of crops could sensibly reduce are those which can be readily supplied again in the form of a dressing of ordinary artificial manures. Of the 245lbs. of mineral matters in a crop of wheat, 210lbs. are in the straw; so that if we return the straw to the land (in the form of manure)—not necessarily every year, but the abstraction of several crops applied at one time—we have only to demand of the soil a perpetual supply of the 35lbs. of minerals sent off the farm in the corn sold; to which must be added the waste of mineral matters during the conversion of the straw into manure. The table just given shows what an immense store of mineral food for a long succession of crops is contained in a common loam.

But it must not be supposed for a moment that we may go on exhausting these particular quantities of ingredients, and then no more will be left in our soil. A staple of 9 inches' thickness has been assumed, because this is the depth supposed to be ploughed and worked, but the subsoil may be equally well constituted and composed, and thus by our very gradual abstraction of material from the field, our staple will gradually sink lower and lower, incorporating the subsoil with itself by very slow degrees, besides which, the rest of the crops will fetch up mineral nourishment for themselves. In cases where an absolutely inert and worthless rock, or sharp, raw unmitigated sand underlies the staple, of course a dressing of clay or other application will supply the exhausted staple for another long series of years.

I have said that the requisite proportion of these valuable and necessary mineral ingredients may exist in the soil, and yet their liberation, solvency, preparation, &c., may not take place in sufficiently quick time to enable successive wheat crops to be grown. This will depend upon the mechanical tillage we employ to effect this end; hence the necessity for the deep and thorough pulverization of the ground, and the continual maintenance of a free access of air, water, &c., into it. Practical trial alone can determine how much tillage is necessary in every separate case, but there is plenty of evidence to show that on ordinary loamy soils the methods Mr. Smith employs are found in practice quite sufficient to accomplish the object of feeding any number of successive crops. The measured produce shows that, hitherto, Mr. Smith has found no lack of native mineral constituents, and the cultivation bestowed has secured their release, solution, or chemical activity rapidly enough for the use of his magnificent crops. According to the forebodings of some chemists, he may be slowly spending "the dormant capital of his land," but so slowly that at the eleventh year of the process the soil seems to be positively better instead of deteriorated in fertility.

Consider Mr. Lawes' wonderful experience at Rothamsted. On a heavy loam with a clay subsoil he has grown a long succession of wheat crops, following each other every year without intermission. The "unmanured" plot gives an average yield of about 16 bushels per acre; in 1855 there had been eleven crops, annually producing (on an average) 2,856lbs. weight per acre of corn and straw (that is, say 16 bushels of grain); and the requisite amount of mineral matters is furnished by the soil itself, under the developing and preparing operation of merely such tillage as farmers usually employ in getting in a wheat crop, the ground being ploughed, harrowed, &c., in the common manner. On the plot dressed annually with "ammoniacal salts only" and tilled in the same way, the continuous produce was (on an average of eleven years) 4,534lbs. of corn and straw, say a yield of 26 bushels per acre. The salts were generally sulphate and muriate of ammonia: the sulphuric acid and chlorine these contain tended to supply two of the mineral wants of the wheat plant; but all the rest could come only from the land itself; and had the mechanical tillage extended to the depth of nine inches, and the preparation of minerals been still further increased by frequent stirring and pulverization of this deep staple, far larger crops would have met with all the properly cooked mineral food that their appetites could daily feed on. At Woburn, the continuous wheat-growing experiments gave similar results to those at Rothamsted; and at Holkham, on a light silicious soil, considered too light for wheat-growing, but which had been clayed many years before the trials began, crops were obtained for several years in succession without any mineral application.

The practice I have to describe will also show that by ploughing, horse-hoeing, &c., plenty of the mineral food naturally present in a loamy soil can be prepared for a series of good wheat crops.

I have endeavoured to show that a loamy soil contains abundance of "mineral" food for hundreds of good wheat crops, and that by easy and ordinary methods of ploughing, pulverizing, &c., plenty of this nutriment can be prepared for the appropriation and support of wheat crops following year after year. But this is not all: plants require "aërial" as well as terrestrial nourishment; and whether they gain much or little by their own absorptive power of leaf and stalk, it has been found that large quantities of gaseous matter, or liquid containing gases, or organic substances supplying them, must be present in the soil, or the crop cannot prosper. A deficiency of the costly and indispensable nitrogen was most to be feared, so great a consumption of this element being observed to take place during the growth of wheat; but whether or not this arises from a loss continually going on within the soil as it lies for many months shut up from the free contact of the atmosphere, or whether the nitrogen is actually dissipated by the functional processes of the plant itself, nobody has yet discovered. Probably plants are unable to fix free nitrogen from the air; but we know they can inhale or absorb it in the combined form either of ammonia or of nitric acid; that these compounds exist in quantity in the atmosphere, and are brought down to the soil in rains and snows and dews; and that the earth also abstracts them with avidity from air with which it is in contact. Well, though some men of science despaired of having anything like enough nitrogen furnished naturally (without manuring) for the growth of wheat crops in succession, it is certain that, in addition to the ascertained supply in rainfall, there is such a vast absorption by the earth itself from the fresh charges of air with which Mr. Smith's tillage replenishes the cells and interstices of soil and subsoil, that his land does acquire nitrogenous plant-food in ample abundance. For, without the smallest application of manure, the latter crops, out of a series of eleven, are the most prolific. And more than that, there has been an increase of the store of nitrogen present in the soil; while transacting so largely, Mr. Smith has accumulated a large balance in the hands of his most trustworthy banker. Analysis has shown that his staple soil is richer than the subsoil in nitrogen; and the staple has been deepened more than a foot—a stratum containing nitrogen thus taking the place of raw earth which held a small proportion; so that, instead of the unprecedented series of wheat crops having drawn up and exhausted the native nitrogen out of the subsoil, we have the remarkable fact that *a considerable deposit of this constituent has been acquired from the atmosphere*, besides that which has been consumed or appropriated by the crops.

The secret of success, then, lies in having such a depth and minuteness of tilth as will provide an area of "internal superficies" (or absorptive surface of the particles of earth) sufficiently large to obtain *the requisite amount of aërial food in the time demanded by the crop*—a depth and minuteness of tilth that will also bring *enough of the proper mineral ingredients under atmospheric action* to ensure their preparation in prompt and adequate supply. And Mr. Smith's experience has shown that this depth may be easily attained, and that it is sufficient for raising crops, if not in perpetual, at any rate in long succession. Most of us feared that Mr. Smith was exhausting the goodness of each additional inch of subsoil as fast as it was brought into play by the trenching-tool, and that when he ceased to go downward, his produce would dwindle. What is the fact? On the light land dressed with clay, the fork has never penetrated beyond thirteen inches; yet the average yield has not diminished, and the following is Mr. Smith's own account of the clay piece: "At the outset of my farming, fifteen years ago, the field was in grass, which I pared and took off the land; then ploughed it the full depth of the *five-inch staple* for a crop of oats, followed by vetches. After this came the first triple-rowed wheat crop with its wide intervals, which I dug one spit deep, bringing only a very few inches of *yellow clay subsoil* to the surface. The second year these well-stirred intervals bore the wheat crop, and the stubble was dug in. And thus year after year, alternately, the same acre of land has had a fallow and a wheat crop too. In the third and fourth years the spade went down a few inches deeper, and so, gradually and regularly, for four years more, till a depth of sixteen or eighteen inches was reached, when I stayed my hand; and, after that, was satisfied for *the four following years with a single spit.* Last year, however, I returned to the double spit and a fresh inch of clay." When the double-digging shall have arrived at the limits of two feet below the surface, beyond which perhaps it may be too expensive to go, should the crops exhibit symptoms of debility, we may begin to prophesy the close of this lengthened experiment; until then, it is vain to be questioning how long it may last. And on the light-land field, the present indications are that the method may be pursued for ever, provided a dressing of clay may be applied at intervals of several years.

And now, before I proceed to details of management, let me say, that "wheat-growing on Lois-Weedon principles" does not involve flogging the land with crops, and withholding farm-yard or artificial manure. Mr. Smith would use farm-yard dung if his wheat would *stand* it, or guano, soot, or nitrate if he found such stimulants were wanted: he has given a mineral dressing, that is, clay to the light land; and if ever the time should come when the two-feet trenching is found insufficient, and more elaborate surface-tillage fails in its turn, doubtless the manuring of ground so long innocent of the muck-wain or the guano-bag would powerfully assist the growth of wheat or any other crop. In fact, you have only to walk over Mr. Smith's field, and then look at the soil of neighbouring fields (as I have done), to see what an improved texture and quality, and obviously augmented fertility, have resulted from his culture. While bearing prolific yields for so many years, the land has been wonderfully improved, which would soon appear were the old system of husbandry to be again practised on it. *Where the land requires it, by all means manure*; the logic of the case being this—if great yields of the healthiest and best grain can be raised by tillage alone, larger yields will be produced by tillage and manure together. And we are not obliged to view the system as perpetually self-maintaining. Mr. Smith offers us a more profitable mode of growing corn than any we have hitherto followed; and if it be so, we can make it a part of our rotation, without going to the extreme of trying how long it may possibly hold out.

Viewing the matter, then, in a moderate and reasonable light, let us look at the facts and figures.

I have inspected the astonishing crops on Mr. Smith's little farm more than once, and did the limits of my subject permit, I could tell of winter beans in single rows five feet apart, yet branching so as to meet across the intervals, with stalks bearing forty or fifty pods each, and yielding over six quarters per acre, while in the fallow spaces between were raised eight or nine tons of carrot besides. I could tell of twenty-seven tons per acre of swedes grown in single rows five feet apart, with their leaves touching across the intervals, and their bulbs of enormous size; of prodigious weights of mangolds, and marvellous drumhead cabbages 40 lbs. in weight, cultivated with the same wide spaces, by means of deep tillage, and heavy manuring, farm-yard dung being buried fifteen inches deep, and artificials plentifully supplied at the surface. But our business is now with the wheat only. Mr. Smith's land is just what he says it is: one field is the ordinary heavy wheat soil of the oolite formation, generally rented at not more than 30s. an acre. The four acres of lighter soil have chiefly a gravelly subsoil, and the claying having lasted a good many years, was not a very costly affair. There is nothing specially peculiar in the soils; the same qualities of land exist over tens of thousands of acres; and undoubtedly, any good wheat land may be brought by the same means to a similarly productive condition. The average yield for eight years on the lighter piece is about thirty-four bushels; on the strong land the produce has been as follows :—The average of eight years, beginning with the harvest of 1847, was fully thirty-four bushels; in 1855, forty bushels; in 1856, thirty-seven bushels; in 1857, thirty-six bushels; in 1858, upwards of forty bushels. The average amount of straw (which must be considered as part of the returns, seeing that it is never restored to the soil,) has been at least a ton and a half, and this last year quite two tons per acre. The quality of the grain is always so good, that Mr. Smith has usually made the highest red wheat price of his market, because being able to feed the crops by horse-hoeing and subsoiling, and support it by earthing up the rows just before flowering time, *his wheat is not lodged and damaged by the July rains.* A good deal of the straw of the last crop was upwards of six feet high, yet none of it was laid. Mr. Smith writes, "I believe the case is almost peculiar. With the exception of another piece of wheat in this parish on my plan, I knew of no other bulky crop that was not in part or wholly beaten down; and had only ten days' fall of rain come upon it in that condition, the loss to the country would have been immense, and in some cases ruinous. We were only saved by a providential succession of many weeks of sunshine unprecedented in our climate. Could we reckon upon such a season year after year, the open-handed intelligent farmer, with the aid he now has from artificial manure, might safely reckon year after year upon a yield of six quarters. As it is, the best authorities despair of any means, in the ordinary mode of farming, of guarding against an evil which so often partially blights or wholly destroys his hopes. I owe my immunity from this general disaster, not so much to the greater comparative stoutness of my straw, as to the broad space of my fallow intervals, which enables me to earth up my wheat with the mould-board."

I need not enter minutely into Mr. Smith's practice, because everybody ought to be sufficiently well acquainted with the details by this time. His average annual expenses are:—

	£	s.	d.
Digging and cleaning the moiety of each acre ..	1	14	0
Horse-hoeing ditto three times, 6s.; ploughing, 4s.	0	10	0
Hoeing and handweeding	0	5	0
Rolling with crusher at seed time and at spring 1s.	0	3	0
Two pecks of seed, 2s. 6d.; dibbling, 5s.	0	7	6
Bird-keeping	0	4	0
Earthing-up wheat	0	3	0
Reaping, &c., to thrashing and marketing ..	1	13	0
Rent, £2; rates and taxes, 4s. 3d...	2	4	3
	£7	3	9

To this should be added something more for interest, insurance, &c.; so that I will take the total outlay at £7 10s. per acre. The average returns for the last eight years, up to 1858, have been 36 bushels of wheat, and 1½ tons of straw per acre. The present (1859) crop, already harvested, is estimated at 42 to 44 bushels per acre; all the crop heavy, large-eared, high-strawed (nearly 6 feet high), yet none of it injured; though the wheats in the neighbourhood are fearfully damaged. You may reckon the amount of profit according to the price corn may happen to be selling at, but always include the straw too, because this is clear gain, seeing that it is never returned to the land.

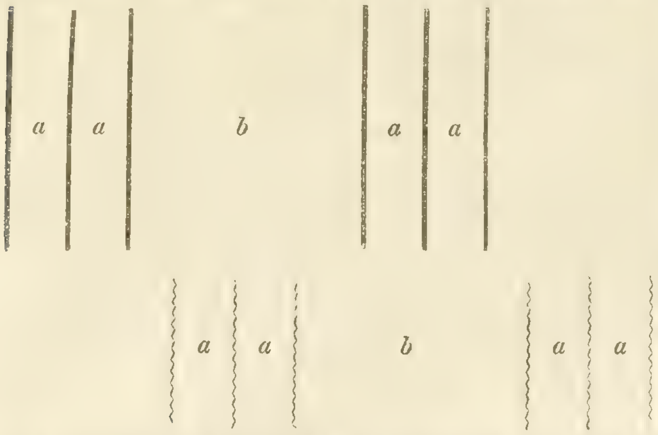
	£	s.	d.
Say, 36 bushels at 5s.	9	0	0
Deduct expenses	7	10	0
Clear profit per acre	£1	10	0

The straw is worth 40s. per ton to Mr. Smith, and to many other cultivators; but in some districts, 10s. a ton would be thought quite high enough. Adding therefore 1½ tons of straw at these prices, we find Mr. Smith's profit to be £4 10s. per acre; while in cheap straw districts the profit would be £2 5s. per acre, with wheat at 40s. a quarter.

It is a very noticeable fact that so little difference exists in the amount of produce and also in the clear profit, from the light gravel land (clayed), worked 13 inches deep, and from the fine clay soil that has been worked at least 18 inches deep—the former having annually given 34, and the latter about 36 bushels per acre during the last eight years. This seems to indicate that on loamy soils, suitable for wheat-growing, we have a good prospect of fair crops without cultivating to a greater depth than horse-traction implements can very well reach; the wheat will thrive if we plough and subsoil 10 inches or a foot deep, and "pulverize to the letter" with shallower-working horse-hoes and grubbers.

The chief practical objection to Mr. Smith's particular process, is the necessity for employing hand-labour in digging—which no farmer can ever be expected to attempt on a large scale. This difficulty I hope is now removed; for I have now practised the system for three successive years—ploughing and subsoiling between the rows instead of trenching by hand. Ordinary horse implements having thus been brought to answer well for the Lois-Weedon wheat-culture, the way seems open for the still more economical and greatly more effective performance of the tillage by steam-power; indeed, Mr. Fowler's parallel wire-ropes are exactly adapted for working between the rows of the young growing wheat.

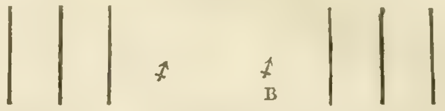
My experiment is being conducted upon ten acres of alluvial or marsh soil—low-lying, flat, and naturally wet; a clayey loam resting upon a sandy stratum at considerable depth, but not a particularly good piece of ground. In fact it was chosen for the trial, because of its being less light and silty than the remainder of the farm; and it had been undergoing rather a heavy course of cropping. According to the value of the district, the rent may be taken at 35s. The last application of any manure whatever was a moderate coat of farm-yard dung for beans, in 1854; and the last fallow crop was turnips, in 1850. My first Lois-Weedon wheat crop was grown in 1857, after barley; and being got in late and very badly, never promised much of a yield. The ten acres produced within a trifle of 30 quarters, or 24 bushels per acre. The harvest of 1858 gave just 30 bushels per acre of dressed corn, and the third crop grown on this system (1859) has yielded 33 bushels per acre. The wheat is drilled in triple rows, the "spaces" *a a a a* being 10 inches, and the "interval" *b* 40 inches; so that from the middle of one stripe to the middle of the next is 5 feet. Next year's crop is sown in the intervals of the last, as indicated by the waved lines. As the intervals are ploughed and tilled, and, in fact, dead-fallowed, in preparation for the next year's crop, half the land is occupied by the wheat, and half is under fallow; yet the ten acres under this system gave last year as much produce as other ten acres did under the ordinary mode of culture—the harvest being a very poor one throughout the district. This is very remarkable, for as the wheat occupies only half the surface, the 37½ quarters from the 10 acres are, in reality, a yield of 7½ quarters per acre from 5 acres, while the other 5 acres lie in intervening strips of fallow. The present (1859) crop is harvested, and is estimated at from 32 to 34 bushels per acre—that is 40 to 42 quarters altogether: the straw standing up well, although the crops in the neighbourhood are exceedingly laid and storm-broken.



Then, as no manure has been applied, the straw has also been clear gain to the extent of its value, at whatever you may please to fix this debatable item. There has been about 1½ tons per acre each year. It is possible that I may find it advisable to manure in future years (though at the present depth of tillage the crop has been quite heavy enough in the straw, and would have been much lodged, and the yield damaged, had it been any heavier); if so, I propose to give a dressing of artificial manure equivalent in money value to the worth of the straw, and then the corn alone will form the source of profit.

The details of management are very simple. After harvest, fork out couch from the closely mown stubbles. Broadshare or scarify the fallow intervals, to keep down the weeds. Shortly before seed time, again scarify and harrow; prepare a suitable mould by harrowing, taking care to set the harrows widely apart, in order to miss the stubble rows, and drill with the distances shown in the diagram given above. Sow 3 pecks per acre (that is, using the same drill-wheel that would sow 6 pecks an acre, if the rows had been 10 inches apart); and be sure and sow early, say the latter part of September or early in October.

When the wheat is well up, take a plough (with two horses in length), once up each interval, the coulter running within 6 inches of the wheat row on the near side, the furrow slice covering up the old stubble. A subsoiler, drawn by say three horses in length, is to follow along the furrow bottom.



This ploughing is represented by the harrow A. In spring, say in February, or as soon as the land is dry enough, after a time of frost and snow, perform the same process along the opposite side of the interval, as at B. In March or April, hand-hoe the wheat rows. In April, when the upturned furrow-slices are in a crumbling state, tear them down by passing a narrow harrow along the intervals, and then stir up deeply with a good grubber set about 26 or 28 inches wide, the horses walking in length. It will be necessary to go over the field with a hand-rake to pull off any clods that may fall upon and bury the outside rows of wheat. Horse-hoe the fallow intervals deeply, say twice during the summer, and hand-weed the wheat when requisite. When the ears are fully out and in bloom, take a ridge-plough up the intervals, so as partially to mould-up the wheat-rows on each side; this will prevent many stalks from being blown down by winds or borne down by rains. A subsoil-plough may break up the bottom of the furrow left open in the middle of each interval. The crop may be mown or bagged close to the ground; and it should be borne in mind not to obliterate the lines of stubble by harrowing or otherwise, because these form the "guideways" marking the place of the next sowing.

Expenses will vary in different localities and at different periods, and according to the high or low rate at which you value horse labour. During my experiment wages have varied from 10s. up to 12s. per week; and I have reckoned half-a-crown for a day's work of a horse, equivalent to £37 10s. for 300 working days in a year. The cost per acre of the several operations has been as follows:

		s.	d.
August......	Scarifying fallow intervals........	1	6
September ..	Forking out couch..............	3	0
	Scarifying and twice harrowing intervals....................	2	0
October	Drilling and harrowing..........	2	5
	Seed, 3 pecks (at 4s. 9d. per lb.)..	3	7
December....	Ploughing and subsoiling........	3	6
March	Ploughing and subsoiling and removing clods off the wheat....	3	7
April	Hand-hoeing the wheat	1	6
	Harrowing and scuffling the intervals	1	4
May........	Hand-weeding the wheat........	0	9
	Horse-hoeing the intervals	0	10
June........	Horse-hoeing the intervals second time	1	0
	Moulding up wheat	0	8
	Hand-weeding wheat	0	4
August......	Mowing and harvesting	21	0
	Thrashing and marketing........	10	0
	£2	17	0
To this must be added for rent, say £2; for tithe, rates, and direct taxes, say 13s.; making altogether	£5	10	0

Add also for 5 per cent. interest on the outlay, say 5s., and the total cost per acre is £5 15s. Is my ton-and-a-half of straw worth 15s.? If so, there will be only £5 left as the cost of an acre's produce of marketable corn. At 40s. per qr., 20 bushels per acre yield just meets the expenses, and all above this quantity is clear profit. Well, my first year's crop was 4 bushels an acre over the 20; the second year's crop (1858) was 10 bushels over; and the present year (1859) it is larger still—probably 12 or 14 bushels over. So that, reckoning the price at 40s. per qr., I have had £1, £2 10s., and probably £3 or £3 10s. an acre clear profit during the several years of the experiment.

As compared with Mr. Smith's management, I find that his clay-land wheat (yielding 35 bushels on an average) costs him 4s. 3d. a bushel, and his light-land wheat (yielding 34 bushels) costs 4s. per bushel to grow; while my wheat, taken as yielding 30 bushels an acre, costs only 3s. 4d. per bushel.

My experiment has been undertaken partly to prove how far tillage alone can be trusted to for wheat crops; but, of course, if tillage brings so much produce, tillage and manuring together may be expected to bring still more. A much greater yield than 33 bushels per acre may stand and ripen on the land, as shown by Mr. Smith's 40 bushels yield; so that were I to expend 10s. worth of guano on each acre, in addition to the present expenses, I should be just as sure of recovering more than that sum in extra produce, as farmers now are when applying artificial manures upon ordinary crops.

Then, again, what need is there for prolonging this successive corn culture to an extreme period, or altogether abandoning the sound and valuable practice of rotation of cropping? That for three years together a common description of soil will produce (upon Lois-Weedon principles, yet with simple horse-tillage) three good and very profitable harvests, my experiment has satisfactorily proved; and there is no reason why we should grow corn on this plan in perpetuity, or else not at all. I feel sure that on any suitable wheat soil two good crops at least may be obtained successively by the means described, and give a clear profit of about £3 per acre each year, when the market price is 40s. per qr. Why then might not we take a couple of wheat crops from each of our fields in succession, following with other varieties of corn, or with green cropping?

A.	B.	C.

Suppose 300 acres arable, in three portions (A, B, and C). Let A and B be in wheat, and C in other produce. Next year have B and C in wheat, and A in other produce. The year after that, C and A in wheat, and B other produce. Thus the wheat would be as it were down two years, like artificial grass, only of course having to be sown. Every year there would be 100 acres of wheat after wheat, 100 acres of wheat after various crops, and 100 acres of wheat-stubble broken up for green crops and other produce. Two hundred acres of wheat, at £3 per acre profit, would be £600 clear annual income; and I fancy the other 100 acres, with all the straw from two-thirds of the farm, might be made profitable in a very similar ratio. How many farmers are able to realize £800 a-year clear surplus above their expenses when wheat is down to 40s.? Of course I do not mean to urge this particular rotation of "two-thirds wheat" as the most advisable; but it is an illustration of the advantage promised by the Lois-Weedon system of husbandry.

John Algernon Clarke.

AGRICULTURAL MACHINERY, AND THE PRIZE SYSTEM.

If we compare the present condition of the manufacture of agricultural machinery, with that presented at a period dating some five-and-twenty or thirty years back—for the retrospective glance will embrace an extent little more than this—one cannot fail to be surprised to note the rapidity with which a state of comparative perfection and efficiency has been attained. For, while we remember that at the period above alluded to, the spade, the plough, and the harrow comprised the three great, if not the only, classes of mechanism in use, will we be less surprised to witness the number of various machines and implements in use, and in peculiarities of construction, which the exigencies of a more systematic, because more scientific system of cultivation has called into requisition. Many circumstances have conspired to aid this rapid development of the invention and manufacture of agricultural mechanism. A superior mode of culture; the resources of chemistry; the daring innovations of speculators; the quieter, but not less powerful efforts of practical farmers, and the exigencies of a new political and social organization, have led to a system of cultivation in which finer management of the soil, more certain and economical methods of sowing have in turn demanded and brought about the introduction of mechanism to aid in the securing and preparing for market of the crops, and of systematizing the housing and feeding of stock. Nor have the labours of the press, and the influence of rapid and certain modes of conveyance been less marked. The press has diffused a knowledge of improvements in quarters where formerly the light of intelligence never flashed, and our "iron ways," and the plashing steamers of the deep have offered facilities for the transport of those aids which improved practice has brought into use. In this, as in other departments, then, we see the clear connection—the links which bind many different agencies together, all working to serve one common end. But chief, according to some, of the agencies which have aided so effectually in bringing the manufacture of agricultural machinery to its present stage of what by some is so complacently called perfection, is the establishment of agricultural shows, and the prize system generally, if not universally connected therewith. Whatever views may be held as to the influence of the "prize system," or the progress of the manufacture now, there can be little doubt but that at the period of the institution of "shows," that it was strongly operative for good. It gave an impetus to invention and an incentive to produce good manufacture, which in the peculiar state of agricultural science *then* existing, would wholly have been wanting. For it must be remembered, that while comparing the apparently slow progress of agriculture with that of the splendidly rapid development of manufacturing mechanism, a very different state of matters obtain with the former not found in connection with the latter. The manufacturing mechanic can patiently plod on in his experiments and trials without any interruption; the fault shown by the labour of to-day can be rectified by the trial of to-morrow. Not so with the trials of agricultural machinery: in many branches, especially those connected with the cultivation of the soil and the securing of the crops, limited trials only can be obtained, in the course of a whole year; and the correction of the faults of one season have to lie over for trial till the period of another. Progress in some departments is, therefore, necessarily slow; and the difficulties thus arising, and the tardy realization of hopes, rendered means in some measure necessary by which an artificial stimulus could be given to the development of new and improved mechanism. Hence arose the "money prize or bounty system"—a system which political economists condemn as unsound in principle, and productive of no real progress in practice; but which, nevertheless, has done much to foster, in times of early weakness and of difficulty, a manufacture which had special circumstances of an adverse nature to contend with.

This early weakness having now, according to some, given way to material strength, and those difficulties having been wholly overcome, an agitation has within the last year or two arisen, which has for its aim the abolishment of the money prize system. Independent of a variety of minor articles in the pages of our agricultural newspapers and magazines, this agitation has found exponents in two pamphlets: 1. "The Manufacture of Agricultural Machinery, considered as a branch of National Industry;" by a Manufacturer; published for the Association of Agricultural Engineers, by E. Stamford, Charing Cross, London. 2. "Mechanical Science and the Prize System in Relation to Agriculture;" by Wm. Day. London: Harrison, Pall Mall. Price 1s.

To the views promulgated by the first of these pamphlets we propose, at present, to direct attention. Passing over the first three chapters, which contain an able *resumé* of the causes which have led to the rapid development of the trade, we come at once to that on "The Prize System considered," which is the gist or main kernel of the pamphlet.

Commencing with a statement of the advantages arising from the bestowal of a "money prize," at the early period of the history of the trade, as giving those manufacturers who had attained the distinction "a status throughout England, which they had previously no means of obtaining, beyond a very limited sphere," it proceeds to point out how, as years of trial of the money prize system rolled on, "suggestions for improvement in the mode of trial and objections to the whole system became numerous and urgent; and as there was much reason in those complaints, improvements were from time to time adopted by the Royal Agricultural Society of England. "Still," continues the writer, "the evils complained of by the makers were only partially remedied. The hurry and bustle of trials, which settled in minutes what could scarcely be settled in days, still continued, and the frequent occurrence of those contests began to be more seriously objected to as the necessity for a complete revision of the whole system became more apparent." In order to remedy in some degree the evils here complained of, the triennial system of trials was recommended and adopted by the Royal Society. By confining each year's trial to a definite class of machinery, the bustle and hurry usually attendant upon the trials were in a great degree obviated, and the results became more satisfactory. But still the evils complained of existed. The number of machines tried was doubtless reduced; but the principle on which the trials were carried out was still characterised by the same defects.

Now, as to the prejudicial influence of the *principle of trial* adopted at our shows, no one at all acquainted with the trial system then carried out can have any doubt. There can be no question that the trial system, from the very first, was based on erroneous principles, the bad working of which only became strikingly evident as the number of machines to be tried increased. The results of show-yard trials can in no wise be depended upon, for the mode of trial adopted is not at all representative of the system of actual work for which the machine or implement under trial is designed. No trial can be satisfactory which does not embrace all the exigencies of actual practice, and these only can be developed by the *lengthened* trial of the implement under ordinary farm practice. How this can best be done it is not our province here to show; certainly no other method will be thoroughly satisfactory, and in this we but echo the opinion of the most practical and deep-thinking men of the day.

With the opinion of the author of the pamphlet now under review, as to the defects of the present *trial* system, all who know aught of the subject will cordially agree. Not so, however, with the remedy he proposes, namely, the placing of the "reports of the judges, in such form as may express their approval (either entire or qualified, as the case may be)," in the "hands of the exhibitors before the general exhibition day, *in substitution of the individual money prizes as heretofore offered in the Society's prize sheets.*" We have italicised the important point of this proposed plan, namely, the withdrawal of the "money prizes." Before entering into the consideration of the bearing of this proposition, we should glance at the plan proposed to make the "trials" more complete, so as to give results to be depended upon; for although the abolition of "money prizes" is proposed and wished for, the retention of the *trial* system is advocated. The following are the proposals for obtaining efficient trials : 1st. That trials of agricultural machinery should be of longer continuance than heretofore, and conducted as much as possible on the same manner and under the same circumstances that such machinery will be used in the ordinary practice of farming. 2nd. That a committee be appointed by the Council of the Royal Society, composed of the consulting engineer, and of farmers and manufacturers, who shall consider the best mode of conducting trials, and settle what shall be regarded as the " points of excellence" of each implement or machine, and fix the relative importance of each point. 3rd. That the trials shall be conducted upon the plans so settled, and that a full report of such trials be instantly published, and sold with the catalogue, on the first day of the show."

Having now before us plans by which the real efficiency of the trials is proposed to be secured, we shall be able to test the likelihood of their utility, contrasting them with the evils assumed and presumed of the *money prizes* as expounded by our author. We have already said that the author admits the advantages which were derived from the " money prize" system at the earlier stages of the development of agricultural machinery, but he is of opinion that " prizes" *now* " for the ordinary standard implements have lost their significance, and that the application of further stimulus would prove injurious." " We do not maintain," he goes on to say, " that any machine has reached positive perfection; indeed, we would set no limit to improvement. But we are convinced that a stage has been reached where artificial stimulus is needless and baneful, and that such a state of progress has been attained in a great number of machines, that they now may be safely left to the simple principles which regulate the great business of bargain and sale all over the world." Now, it appears to us that this conclusion is arrived at from an assumption altogether erroneous. In view of the fact that not a few of our practical men are of opinion that many of what are called " standard" machines and implements are mere necessities of a bad state of practice, the use of which will be done away with as improved practice is inaugurated; and in view also of the train of thought which many are now at great expense in working out into practice, and of the amount moreover of philosophical deduction, all tending to the probability of a totally new method of working being introduced; it is very difficult and hazardous to say that any one of the numerous machines or implements, which, be it noted, received at one period the advantages acknowledged by our author of an artificial stimulus, had its position so well defined and its perfection so marked and decisive, that its further improvement is impossible, or at all events, not likely to be further developed by " artificial stimulus." If there is any one implement which is pretty generally looked upon as " standard" and as comparatively perfect in principle and operation, it is the plough : and yet it is in connection with this very implement that discussion is now rife, as to its merits or demerits as a cultivator, and which implement by not a few is considered to be doomed speedily to be superseded by mechanism more economically worked, because more philosophically adapted to the work it has to perform.

But the present prize system is productive of other evils. " Its maintenance can only lead," says our author, " to a further development of a practice condemned by all parties concerned. We allude to the practice well-known to all in the trade of so preparing machines intended for competition, which whilst they comply most fully with all the conditions of the prize sheet, and carry off the premiums offered, are so little calculated for actual wear that no manufacturer who values his reputation would put them into the hands of his customers." We do not see how this evil will be remedied by the abolition of " money prizes" merely, and the substitute therefore of carefully prepared " reports," as suggested by our author. If the " money prize" system with all its acknowledged or assumed worthlessness, offers a too highly seasoned stimulus, and urges on this reckless competition, we do not see how the stimulus will be lessened by the substitute proposed ; for the higher the real value of the reports which are to be given in lieu of money, the greater we conceive the stimulus will be, and the greater the evil complained of, if indeed the evil arises from the public stimulus. We conceive cause lies nearer home : the judges should not give a prize to a machine which is avowedly made for competition and not for every-day work ; and if from the nature of the condition of the prize sheet they cannot help themselves, the difficulty will be got over very simply by altering the conditions. In point of fact, this suggestion has been already offered to the consideration of the Royal Society by Mr. Fisher Hobbs, in his " remarks on the trials" of the Carlisle Meeting, in 1855. He says, " I think it will be absolutely necessary in future for the Society not only to make such conditions, in reference to the construction and trial of portable steam-engines, as may prevent a recurrence of this evil, but to secure the Society and the public from disappointment in their practical value by submitting the prize engines to subsequent trials for a lengthened period under the ordinary management of a farm establishment." Alas, for our present trial system ! " to this complexion must it come at last." In the above quotation it will be perceived that the remedy for the evil lies in the hands of the framers of the prize conditions. The evil has no connection with the principle of the " money prize" system *per se*.

But we have not yet exhausted our author's list of the evils arising from the " money prize" system ; like " Banquo's line, " they come up " another, and yet another," till we begin to think that " they will stretch out till the crack of doom." The prize system encourages, says our author, " a continued straining after novelty, and such restless desire for change obliges manufacturers to make alterations to meet this requirement ; the effect of which is, that the old standard of the *greatest simplicity* with the *greatest utility* is overlooked, and that constant and progressive cheapening which uniformity invariably produces in all manufactured articles is sacrificed." Again, by the prize system "the energy of the manufacturer is dissipated by frivolous rivalry on unimportant detail, unfitting him for the more solid requirements of business. The invention and construction of machines require the steady and patient application of the very men who are unnerved by the anxiety consequent upon ceaseless excitement, and on whose steadiness of conception and clearness of design, which are so essential, such circumstances are more injurious." Still further, "another weighty reason for the change we advocate, is the great expense entailed upon the manufacturer by these competitive trials." But further still, "Prizes in some instances have retarded the very object which they were intended to accomplish. For instance, in the case of reaping machines, notwithstanding the utmost conscientiousness and pains-taking on the part of the judges, the awards have been so conflicting that inventors and makers have been greatly discouraged, *buyers have been perplexed*, and consequently the introduction of these machines into general use has been delayed." Now, we confess to some difficulties in saying how the substitution of published "*reports*," after patient and well-conducted trials, the favourable ones of which will be as anxiously looked for by manufacturers as are the "money prizes" now given, can operate less strongly than the present system in encouraging "a continued straining after novelty," or how it will prevent the energy of the manufacturer being "dissipated by frivolous rivalry in unimportant details;" or how the manufacturer will be saved the expenses "entailed upon" them by the present competitive trials, inasmuch as we presume they will be as anxious to obtain a "favourable report" under the proposed, as they apparently are now to obtain a "money prize" under the present system; nor have we less difficulty in saying how the proposed plan of issuing reports instead of giving money prizes, will lessen the *perplexity* "*of buyers*," as the awards, we presume, under equally conscientious and pains-taking circumstances, will be as conflicting as ever. If all these evils so graphically described by our author arise from the "money prize" system, we incline to think that they will be aggravated by the plan he proposes in lieu of it; as to our mind it is evident, that the more thoroughly the plan is carried out of having correct, legitimate, and philosophically conducted trials, the more trustworthy will the results be considered, so that in process of time farmers may begin to place more confidence in the "reports" of these trials, than they do now in the certainly doubtful issue of the present system; and as soon as the value of these "reports" is made known, the manufacturer will, we take it, be infinitely more anxious, by correct principles of operation and sound workmanship, to obtain a trustworthy "report" than they are now to obtain a "money" prize. A "report," with a real trial, will mean something definite: a money prize without it is comparatively worthless. Indeed, it is just in view of the increased attention which manufacturers will give to the perfecting of their machines, under a system of "correct trial," the results of which will be depended upon, that the hap-hazard, worthless scramble of the present system is denounced, and a correct business-like trial advocated.

So axiomatic indeed, does the matter appear, that the more perfect the "trial" system adopted, the greater will be the desire of the manufacturers to compete, to enter into generous rivalry with each other, and to spare no expense to carry off the best report; that we are constrained to express some surprise how our author should have overlooked the obvious fact, that the *substitution* of a more reliable report for a less trustworthy money prize—for be it noted the money prize is simply an exposition of the value of the report on which the prize is founded, and by which it is preceded—cannot lessen the evils which he desires to avoid from the artificial stimulus of money prizes. The truth is, if we mistake it not, that the error lies not in the way in which the value of the reports is expressed, but in the too often well authenticated worthlessness of the reports themselves, founded as they are on the worthless data of hastily-conducted trials. Let the trials be conducted in the way suggested by our author, or in any other way deemed best calculated to work out the end in view, and it will be found to be a matter of comparative indifference whether the value of any machine or implement is expressed in a "favourable report," or a five, ten, or twenty pound note. Catalogues would read as well with "took the first class report at Warwick," in flaming capitals, as "took the first prize of £10" at Salisbury.

If the author had advocated the total abolition of *all* artificial stimuli, we could, perhaps, have understood the drift of his argument, but with his proposed substitution of a system which would prove even more stimulant than the system it abrogates, we cannot reconcile the following sentence: "It is also in favour of our views that this is the only branch of industry subject to the artificial stimulus of prize-giving; and surely the most zealous advocates of this system will scarcely maintain that as great excellence has not been attained in other engineering and manufacturing departments as in that of agricultural implements." Political economists would say that it is just because these other branches have been left to the principles which regulate supply and demand, that they have made such progress; but our author apparently forgets that he is not arguing in favour of the abolition of *all* artificial stimulus, but simply altering the nature of the prize given, which is to act as the stimulus; he proposes still to have the trial system, giving the prize of a favourable report instead of that of a five, ten, or twenty pound note, as the case may be. This trial system which he proposes, however perfect it may be, involving as it does the bounty or prize principle, is *not* leaving the trade open to the same free course which has enabled other branches to attain to such a state of comparative perfection. The race of scholarship is eagerly run, whether the stimulus be expressed in the form of a "certificate of merit," or that of a "scholarship," or money bounty. The stimuli may differ in degree: the principle upon which they operate is the same in kind. Just so with the prize system we are discussing; a "report" will act as a stimulant equally with a "money prize;" the competitors are the parties to judge of their relative values; some will think more of the "report," some more of the money. With those manufacturers possessing a high status, it is possible that the desire for "reports" will be more decided than that for money.

The question of the comparative advantages of the "free trade" and "prize system," is not the question at issue, so far as this pamphlet is concerned. Its object, so far as we can trace it, is the advocacy of the abolition of the *money*, and the substitution of the *report* prizes. Of the comparative values of the two systems, there will be, doubtless, a variety of conflicting opinions. Much can be said on both sides of the question, more possibly in favour of giving money prizes. Agricultural machinery has not reached that stage of perfection to enable it to dispense with the services of men of humble means, yet of rare inventive talent, to whom the money prize *is* an object of some importance. Nor is there anything looming in the future of agricultural prosperity to warrant us to believe that the peculiar circumstances of agricultural practice are likely so soon to change as to obviate the necessity of availing itself of the services of those humble mechanicians scattered throughout our rural districts, to whom the onward progress of agricultural mechanism has been so much indebted. We are of those who believe that there is yet a rich future for agricultural mechanism, and that much of the wealth which it is to develope will be aided by the efforts of those men to whom we here allude. All are at one as to the comparative worthlessness of the present system of trials; let this be amended, so as to be productive of reliable results; and with the advantages of the money-prize system, we believe that as much healthy stimulus will be given to the development of agricultural mechanism, as the best and most ardent friends of agriculture would desire to see.

"Money prizes" or "reports," no matter which may be adopted, to express the value of trial results, the trials upon which these are founded must sooner or later be conducted in a manner more reasonably, because more philosophically and mechanically correct, than they are at present. Nor must the system be half amended, patched up here, a piece taken out there; the system as a whole must be reformed, and dealt with in a broad and liberal spirit. The subject is one which requires thorough ventilation, nay, agitation if you will: and all works which assist to develope this should be hailed as contributing something useful to the common cause. Valuable in this respect will be the well-written pamphlet which we have ventured to review; a pamphlet which, though with its main conclusion we cannot sympathise, we have great pleasure in recommending, as containing much that is interesting to the agricultural reader. R. S. B.

[This pamphlet was noticed by us on its first appearance, but the present consideration of its merits comes very well timed to the recent controversy.—EDITOR FAR. MAG.]

IMPLEMENT DEPARTMENT OF THE HIGHLAND SOCIETY'S SHOW.

Resuming our "notes" commenced in last number, we have to take up consideration of the remaining sections, beginning with [section fifteenth, common swing-trees for two horses, and section sixteenth, swing-trees for two or more horses; the first prize in both of which was taken by William Grey, of Cambusnethan, Wishaw; and the second by George Ponton, Woolston, near Linlithgow. The swing or whipple-trees of Mr. Grey have points of good construction worthy of notice. The loose hooks on the ends of the "trees" are superseded by sockets, which carry small hooks with broad points, turned in nearly to meet with the socket. The link on the trace chain is flattened so that it can pass into the opening of the hook of the socket in one way only, and as it cannot be freed from its position without being turned, the link is prevented from slipping off the hook, should the chains become slackened during working.

In sections 17 (broadcast sowing machines for grain, &c.), 18 (drill sowing machines for grain), 19 (sowing machines for grass seeds), 20 (sowing machines for turnips), 21 (sowing machines for turnips, with manure), 22 (dibbling or drop sowing machines, with manure, *no entry*), 23 (sowing machines for mangold), 24 sowing machines for carrots), 25 (three-row sowing machines for beans), and in section 26 (one-row sowing machines for turnips), the Scotch makers had nearly all the exhibition to themselves; for out of forty-four exhibitors in these sections, only three English firms entered: Smith of Thrapston, Reeves of Bratton, and Williamson of Kendal. In broadcast sowing machines all the makers were Scotch; nor is this to be wondered at, for this class of machine meets with comparatively little favour in England; although, oddly enough, it was introduced into Scotch practice from that country. In the older forms of this machine the seed-box was made of one length—the length of this (18 feet) preventing the passage of the machine through a gate. To obviate this the seed-box was generally lifted and placed at right angles to the wheel shaft, being replaced in its position parallel to the shaft as soon as it had passed the gate. In the improved machines now made, the seed-box is generally divided into three sections, the two outer ones folding in upon and over the central one. Various modes are in use for effecting this arrangement, all of them of considerable ingenuity. Of the machines exhibited in the section now under consideration, that of George Finlayson, of Gighty Barn, Arbroath, took the first prize; that of Alexander Dick, Smithy Green, Libeston, the second. The machine exhibited by Messrs. Shireff, of West Barns, Dunbar, has a registering apparatus attached, by which the quantity of seed delivered is regulated as desired. We fear this is a refinement in construction which will not be appreciated in practice; very little experience in the field working of a broadcast sowing machine is needed to tell the workman when he is sowing too thinly or too thickly.

In drill sowing machines there was much to interest the English visitor more especially; for contrasting the simplicity of arrangement and construction, and the low price of the Scotch machines there exhibited, the question was apt to arise, why, with few exceptions, the English machines are so much more complicated, and so high in price. There can be no doubt of this, that the Scotch machines do their work well. Cheapness with them does not bring inefficiency. In many of the departments of agricultural mechanism the Scotch makers are undoubtedly behind their English brethren; on the other hand, it is clear, we think, that in some the English makers might take with advantage a "leaf out of the book" of the Scotch makers, and this department of "drill sowing machines" is one of them.

Seeing the increased and increasing attention now paid to the subject of thin or dibble sowing, it is to be regretted that no "drop" or dibbling machine was exhibited at the show. We should have been gratified to have seen Sigma's dibble, or Maynard's dibbling machine, exhibited at Warwick.

In the section of sowing machines for turnips, Charles Hay, of Rutho, exhibited a machine with a revolving coulter. The seed falls into the furrow before this coulter leaves the ground, so that it is immediately covered by the earth.

Of section 28—machines for distributing guano—the first prize was awarded to Reeves, of Bratton, Westbury, Wilts; the second to Mr. Shireff, of West Barns, Dunbar. In Reeves's distributor the guano is pulverized or kept mixed so as to pass easily out of the box without clogging. A shaft is made to revolve in the lower part of the box, which is made semi-circular. This shaft carries on its periphery a series of blades, projecting, not at right angles, but inclined to the central line of axis, in such a way as to form a species of screw or helix. These blades are not, however, all inclined in one direction, two being set at one angle, and two in the opposite. The effect of this arrangement is such, that the guano is not moved in one but in contrary directions, and "rubbed" out as it were through the apertures. In Mr. Shireff's machine the guano in the box is kept in a pulverized condition by the action of a "stirrer." This extends from one end of the box to the other: it is made of a flat piece of iron, provided with fingers projecting from its sides. The stirrer has a reciprocating motion given to it by means of a crank movement from the axis of the main driving wheel. On passing out from the aperture into the bottom of the manure box, the manure comes in contact with a revolving shaft, provided with a series of projecting snugs or blades, which divide the guano still further, and pass it to the ground in a pulverized condition. By a simple arrangement of lids or valves in the manure box, Mr. Shireff's machine is easily adapted for drill husbandry.

In section twenty-nine (liquid manure distributing machines) Crosskill's took the first prize of £4; James of Cheltenham, the second; of these the peculiarities are too well-known to our readers to require description here. In the same section Mr. James Kininmouth, of Invertall, Kirkcaldy, the author of a well-known prize essay on *Liquid Manure Tanks*, exhibited a distributing apparatus, which is attachable to a common cart-barrel. The main feature of this is the adaptation of a four-way valve in place of the ordinary crane or conical cock. This valve is free from liability to choke, affords full water way, and is easily taken out for repair or cleaning. It is worked by a lever which is carried forward to within easy reach of the driver, who can thus easily regulate the flow of liquid according to circumstances, without either leaving his horse or getting drenched with the sudden flow of the liquid, as is the case with the ordinary form of cocks attached to water-barrels. The liquid is discharged into a trough extending across the breadth of the cart, and punctured with holes. When used for drills, a series of boards are placed in the bottom of the trough, so as to cover a certain number of holes, corresponding to the intervals between the drills. Mr. Kininmouth has had in view, in inventing this distributing apparatus, to introduce a cheap appliance to an ordinary water-barrel, so that for the price of more complicated apparatus, the farmer may have two or more distributors. Thus while one is going over the field to be irrigated, the other is being filled at the tank: thus economy of time is ensured. Mr. Kininmouth, whose persistent and highly successful use of liquid manure during a period of many years entitles his opinion to all due weight, insists strongly upon the utility of having two or more simple water-barrels, so as to keep up a constant supply to the fields, rather than one expensive apparatus. Another point to be attained by the use of the water-barrels with this simple distributing apparatus, is that by them "dreg," &c., from breweries, &c., can be conveyed by them, as also water during the summer to the cattle-courts, when they are not used for liquid manure distribution. The taint of the liquid manure is very easily got rid of, by allowing clean water to stand twenty-four hours in the barrel, thereafter driving the cart a short time, so as to shake up the contents. When re-filled with clean water or "dreg," no cattle, says Mr. Kininmouth, will refuse to drink from it. In section thirty-three (singling machines for turnips), the first prize of £4 was awarded to Messrs. McGregor and Sons, of Keith; the second to John Eaton, of Kettering. Mr. Eaton's machines are of simple and ingenious construction, requiring small draught, or rather pushing power. The cutting blades, or rather knives, are set round a wheel or disc: this is not hung vertically, but at a considerable angle; the action of the blades in entering the earth is thus less violent and disturbing. Although considerable attention has of late been paid to this class of machines, still we do not know of any yet introduced which offers all the advantages which would induce purchasers to invest in it. Indeed it is open to considerable discussion whether the operation of singling turnips is that in which machinery is at all available. With many, if not the majority, of practical men, we are inclined to think that a certain degree of mind or discriminating knowledge is required in the operation; hence the value of manual labour in this department of field practice. Although some lay claim for this class of machines that they can do all that is required in singling turnips; it is evident that they can really do only a small, and that by no means the most important, part of the duty, so that on the score of economy it is doubtful whether their use can be advocated. We know that many first authorities are in favour of hand-labour.

In section thirty-four (machines for raising potatoes), Messrs. Smith Brothers took the first prize of £4; Mr. Law, of Shettleston, near Glasgow, the second. Of this class of machines we have in the previous paper, given an incidental opinion, when discussing section fifth, double mould-board ploughs, with attachment for lifting potatoes. While viewing the operation, and admiring the construction and arrangement of these potato-lifting machines, it is difficult to get rid of the idea that their operation cannot be altogether innocent of cutting and mangling the roots. Their advocates point, however, to another advantage obtained by their use, namely, the complete mixing of the manure with the soil. This, however, is a duty altogether beside their professed one, which is potato lifting, not manure mixing. It is said, doubtless, that this latter advantage is incidental, and is obtained without any loss; but apart from this, the fact still remains that the principle of their action is pretty much opposed to that of hand-labour. We should indeed consider a labourer doing anything but his duty if he voluntarily dug his spade or fork into the drills and threw the potatoes about with such force as to require a netting to catch them, as these same potato lifting machines do. The man doubtless might attempt to silence objections to his style of working, by telling us that he was doing double duty, mixing manure as well as raising potatoes. We would be apt, we confess, to tell him to do one thing at a time, and do that well; his primary duty was to lift potatoes, and that only. These remarks are not altogether uncalled for, at this juncture in the history of agricultural machine making, for they have a wider tendency, and embrace other departments of mechanism as well. It is, we hold, altogether an unsafe principle to go upon, that which attempts to effect a combination of duties by one machine. The simpler any apparatus is, the better: let it do a single duty only, but let it do that duty as efficiently and as economically as possible.

In reaping machines, the chief feature was the offer of a prize of £10 for a one-horse machine, as well as for one for two horses. This endeavour to introduce an apparatus offering to do less work at a time, is a good one. The result of the public trial of reaping machines, like that of most of the late trials, went to prove that notwithstanding all that has been done, and much has doubtless been effected, in this department of mechanism, a reaping machine available at all times, and for all conditions of the crop, is yet to be invented. With perhaps one exception, no machine is calculated to cut, with equal efficiency and economy, grain lying against and with the knives: many indeed cannot cut both ways, and nearly all are placed *hors de combat* in some states of the crop. Now a machine that is placed out of use by a state of the crop not unusual in this climate of ours, is far from that standard of perfection which requires that the machine shall be of practical service in times of difficulty. A boat suited for fair weather only would be of little use to the navigator. Much has yet to be done in reaping machines before they can and will be extended to holdings of all sizes.

In section forty-one (thrashing machines for steam-power), the prize of £50 was divided between Mr. Foster and Mr. Robey, both of Lincoln; the working of both showing a remarkable equality. In this department of farm-steading mechanism may it not be reasonably suspected that makers attempt to do too much, especially in the "dressing or cleaning of grain"? If the grain was required only for one purpose, that of the miller, it might be all very well; but it is required for another—seed for the farmer. Now that condition which is best for the one is, unfortunately, anything but good for the other. On this point it will serve some purposes of utility to note what a first authority says: "It is well, indeed requisite, that a thrashing machine should take the grain from the straw, and divide the grosser impurities of chaff and roughs from the grain, but a question may reasonably be raised whether the grain should be cleaned to the degree fit for market by the thrashing machine. For our part we have never yet seen a thrashing machine that cleaned the grain as it should be for market, according to our judgment of cleanliness; and in our opinion, the English machines attempt too much, and run the risk of injuring the grain. Now the Scotch machine, by its slow motion, never injures the grain, and few attempt to clean it for the market; but the cleaning process by the Scotch fanners and the hands of women-workers is perfect and innocuous. * * It is believed that if the downy substance at one end of the grain of wheat is taken away, the grain loses its vitality. * * * It is the true object of the farmer to preserve the vitality of the grain he sells, that it may be sold alike to the farmer to be sown, or the miller to be ground. If the miller finds that the farmers' extent of cleansing the grain does not suit him, he must himself prepare the grain for his own purpose; but the farmer, for his own purpose, must on no account adopt any process that will deprive the grain he has to sell of its vitality." These views, if correct, will always render good fanners or corn cleaning machines detached and separate from the thrashing machine of prime importance. In this department the only novelty we have to notice is an improvement in the corn-dressing apparatus of Mr. R. Hislop, Jun., of Preston Pans, near Edinburgh. In November 1858, we gave a description of this apparatus, the leading feature being the adoption of two tests—the test of gravity and the test of size; the test of size being carried out before that of gravity. The test of size, in the machine exhibited this year, is on a new principle. Two sheets of zinc are similarly and exactly pierced with a series of holes, in such a way that when laid flat the holes coincide with each other. These sheets are placed round the screw in the form of cylinders, the one passing over the other: the inner one, next the screw, is made fast; the outer one is moveable. By moving this outer one, the holes in the two sheets can be made to coincide so that their full opening may be made available if required, as for beans; or the one cylinder may be passed over the other in such a way that the solid part of one may be placed over the aperture of another, thus giving apertures which may be adapted for good wheat, or for oats, barley, &c.

PROGRESS OF SCIENTIFIC AGRICULTURE.

Any one who looks back upon the progress of the past half-century, will not refuse to admit that Agriculture has shared largely in the advantages resulting from scientific inquiries and improvements, and their practical application. The time has gone by when men were sceptical on schemes of novel innovation and doubtful expediency, or resolutely objected to every new suggestion or modern improvement. But there are those among us who have lived long enough to remember the days when gas was unknown, save as the mysterious term of philosophy, or when steam-boats were deemed an impossibility, when railroads and their speed were not appreciable either in practice or utility by the minds of even intelligent men of the day, and when the man who would have hinted at ploughing by steam would have been looked upon as a madman; yet all these things have come to pass, and are now to us household words, while science has tamed the very lightning to our uses.

> "Now wide the sun of Science flings his beams,
> And Wealth her liberal fertilizing showers
> Diffuses; while Industry, all nerve, but waits,
> Impelled by them, to work such wonders, as
> In days long flown and dark, had miracles
> Been deemed."

The present method of British farming is based on great natural laws, which require men versed in science to explain and enforce, and men with enterprising, yet patient and obedient minds, to carry into practice.

The science of Chemistry, applied to Agriculture, has furnished analyses of soils, and by determining the nature of the elements or constituent parts of the various kinds, and the combination of these also in the vegetable productions, has enabled many to judge as to what are the elements needed to be applied in the form of fertilizers. Similar investigations have been made into the character of the substances generally used as manures, and the result has been to develop the principles which constitute more especially the nutritious parts of these fertilizers of the soil. Many substances before unknown, as respects their practical bearing in this point of view, have, on trial, proved to be very valuable; and, after the analyses have been completed, and the elements known, it has been found that new combinations still more effective may be made at a less expense than the natural ones. In bulk, too, manures are thus greatly reduced, as the essence of the principle by which the plant is nourished is extracted and applied without the adjuncts which are usually found with it. How much of the success of farming, and indeed of all other arts and manufactures, depends upon the economy of waste substances, upon the saving of material, upon imitating that beautiful law, which chemistry teaches us, that in nature nothing is lost! It is by means of waste substances, decaying animal and vegetable matters, weeds, and bones, and every such material, that the soil is enriched, or if exhausted redeemed, and its annual produce increased. With what care are not bones collected here and on the continent, every grain of bone-dust being gathered up like gold, and commerce bringing us thousands of tons, whether it be from the pampas of South America, the prairies of North America, the battle fields of Europe, the interior of Africa, or the cities of Australia! What fortunes have not the gathering of bones realized! and how has the turnip-fly been cheated out of his favourite morsels by the application of bone-dust!

Cultivation is the economy of force. Science teaches us the simplest means of obtaining the greatest effects with the smallest expenditure of power, and with given means to produce a maximum of force. The unprofitable exertion of power, the waste of force in agriculture, in other branches of industry, in science, or in social economy, is characteristic of the want of true civilization. We sow, we reap, and we thrash by machinery, and steam has been harnessed to the plough, and by proper drainage, the skilful rotation of crops, the application of guano, and various artificial manures, applied in due proportions according to the nature of the soil, as shown by analysis, we double and treble our grain crops.

Agriculture in this country is advancing in all its branches, and in none more than in such as are promoted by, or depend upon, the use of improved machinery.

Already the colonies are beginning to be alive to the advantages of steam husbandry, for British Guiana offers a premium of £1,000 for the successful introduction of a steam plough into that colony, and a similar amount for the successful introduction of a steam-digging or grubbing machine.

The wheat grown in Great Britain (Ireland not reckoned) in 1801 to 1810 was but sufficient to supply, at the average rate of 8 bushels per head, 11,000,000 of persons: at the present time the land produces sufficient wheat to feed more than 17,000,000, to say nothing of the additional quantities of other produce raised. Agricultural chemistry has enlarged the domain of knowledge in that important branch of scientific research.

Combination and discussion have done much good. They have driven away the old lethargy and apathy, the bigotry and ignorance which often prevailed among those engaged in husbandry. The proceedings and transactions of the Royal Agricultural Society, the Royal Dublin Improvement Society, the Highland and Agricultural Society of Scotland, the Farmers' Club, the local agricultural societies, and the numerous journals devoted to agriculture, have all diffused a large amount of practical and scientific information.

How much has been done, too, in the introduction of new plants and seeds—whether for forage or for food—in the selection of new varieties of wheat, barley, oats, and turnips, &c. The choice of suitable varieties is even of more importance than the choice of a good soil. Our scientific agriculturists no longer regard the plant as a mere machine, acting a mechanical part, and guided by certain chemical changes: it is a far more subtle thing, it is guided in its development by the laws of life, which overrule all chemical action. Thus chemistry is no longer the solitary guiding star of the scientific farmer: physiology must go with it, hand in hand, in all that relates to improved cultivation. When improved varieties are once obtained, high cultivation is necessary for the continuance of those properties that render them valuable. When cultivated plants are neglected, and allowed to grow in a poor soil, they soon revert to their wild condition. It therefore requires a continuance of suitable conditions to perpetuate those peculiarities which render them useful to man; hence the great attention requisite to keeping up the supply of those elements essential to the building up of the structure of the plant. If they are not present naturally, they must be supplied in the form of manure, which may be of various kinds, according to the circumstances of the case. As Sprengel observes, "a soil is often neither too heavy nor too light, neither too wet nor too dry, neither too cold nor too warm, neither too fine nor too coarse; lies neither too high nor too low, is situated in a propitious climate, is found to consist of a well-proportioned mixture of clayey and sandy particles, contains an average quantity of vegetable matter, and has the benefit of a warm aspect and favouring slope;" but although possessed of all these advantages, it is yet unproductive, because it wants some mineral constituent required for plant food. In new countries there is a strong tendency to carry off annual crops from the land, without giving anything back. This was especially the fault, for a long time, in Canada, and Australia, and in the tropical islands of the West Indies, Ceylon, Mauritius, &c. Little or no manure was given to the coffee trees. The stalk of the sugar-cane, after being pressed for the juice, was burnt for fuel, instead of being returned to the soil. Now, however, better practice prevails. The sugar planters of Barbados, Mauritius, &c., find their interest in importing large quantities of guano and other manures, and by high cultivation succeed in obtaining enormous annual returns of sugar.

In a comparatively short time, systematic draining has completely changed the aspect of extensive tracts of country in Britain, converting the cold morass into fertile fields, and greatly increasing the annual produce, even on soil which was before bearing crops sufficient to satisfy the most exacting expectations.

The late Professor Johnston, in his lectures in America, pointed out the following among the greatest practical improvements in the treatment of land, by means of which British agriculture has been advanced to its present condition: The alternate husbandry, a judicious rotation of crops; the introduction of thorough drainage and deep and subsoil ploughing; the judicious and continued application of lime, and the use of bones in various forms—generally what is called "high farming" comprehending the culture of green crops extensively, the making of rich loams, and the purchase of valuable foreign manures of various kinds, to a great extent; the rearing and feeding of improved breeds of stock; the custom of full feeding both for plants and animals; the introduction of lighter and better contrived implements, and of machines to economise labour, and horses having a quicker step.

Such, then, are generally the practical methods or processes by which British agriculture has been advanced to its present condition. To most of our readers these are well known facts, which it may almost seem superfluous to recapitulate and comment on; but the new settlers in distant colonies, and the rising generation at home interested in agriculture, may well be reminded of the great practical improvements which have enabled the British farmer to sustain the prolific yield of his soil, and to compete with the abundant produce obtained with little trouble in new lands, requiring at present but little care, culture, or science. The lesson of perseverance and progress, in the successful adoption of new processes of culture and new machinery, whether for ploughing, sowing, hoeing, or reaping, &c., will at least not be lost, and may stimulate further invention and enlarged experiments.

BATS AND SWALLOWS.—It is curious, by the way, to mark the analogy that exists between the swallows and bats. Each of these groups loves the air, and is mostly seen on the wing. Their food consists of the flying insects, which they chase by their exquisite command of wing; and it will be noticed that, as soon as the swallows retire to rest at dusk, after clearing the air of the diurnal insects, the bats issue from their homes, and take up the work, performing the same task with the insects of night, as the birds with those of day. Then, as the dawn breaks, out come the swallows again, and so they fulfil their alternate duties.—*Routledge's Illustrated Natural History, by Wood.*

THE KENT AGRICULTURAL SOCIETY.

MEETING AT ASHFORD.

The Royal Agricultural Society of England will hold its next great anniversary meeting in the county of Kent. Any such similar exhibition of the district itself consequently comes to be regarded with something more than a merely local interest or importance. The Kent show of this year may be considered as a prologue to the more comprehensive proceedings of next, just as a country poet will occasionally pen an introductory address to some standard work about to be performed. But depending even on its own merits the county society has here some especial claims to attention. It is in fact the first time that the experiment of a migratory meeting has been fairly tried. Hitherto the chief of these gatherings have been at Maidstone, and so when last season an association was announced which should be more general in its action, the selection of the site for the opening day qualified it to something very like the Maidstone show over and over again. This year, we repeat, the new society has enjoyed a far better opportunity of demonstrating its object, and it has done so with some very encouraging success. The meeting at Ashford was altogether an improvement on that of 'fifty-eight. There was more heart and life in it. The competition was greater, the attendance was better, and the farmers themselves had evidently a warm feeling in the business of the day. What certainly looked at starting like a very uphill game promises now to work on into a useful and influential exponent of the agriculture of the district.

And this, be it remembered, is peculiar. It is difficult to say how far the farming of Kent is before or behind the rest of the world. It is a nice point whether the great National Society will come to teach or to learn. Most assuredly the customs of the county stand quite out from those of other quarters. We see cattle, sheep, and implements prized and persevered with here that are almost entirely ignored elsewhere. The more, however, other people denounce them, the more do their own friends uphold them. The Southdowns have spread because of their known excellence. The Shorthorns have multiplied on the same showing; and the Coleman cultivator and the Crosskill clod-crusher are found far beyond their own immediate range, simply from their general usefulness and applicability. But in Kent they argue all the other way. They are the first of exclusives. What will not suit the common run of folks suits them exactly; and so they hold on to their turnwrest ploughs, their Sussex beasts, and their Romney Marsh sheep. We must do them the justice to say that none could speak stronger as to the correctness of their own practice and opinions. At the recent meeting of the Highland Society we met on the plough-field with a well-known man of Kent, and inspected, in company with him, some of the work. He glanced at the admirable performance of Howard's, he turned to the next best doings of Sellar's Scotch implement. He honestly admitted they both did very well, while he was fain to add, for the credit of his county, "But it is not ploughing, after all, you know. You can't plough without four horses." And at this very show on Wednesday last, we saw a man stop opposite one of Mr. Selby's good-looking Southdowns, with a sort of half excuse to his friend for doing so, "I don't know anything about these sort of sheep, but still I like to look at them." He was home-bred, no doubt, and rather proud than otherwise not to know anything about them. Then at the dinner, Mr. Tinlay Dun, one of the judges, spoke to the capital performance of one of Fowler's steam-ploughs, which had been at work on that and the day previous. He stated the increased depth to which it went—the better condition it left the land in—and the small cost it might be employed at. This was all very well, and so far the company went quite with him; but when he wound up by adding that "it did its work far more effectually than the best Kent plough", he was at once met with loud cries of "*No! no!*" That could not be—that must be impossible.

> "*Up* from King George to Sir Watkin I have seen,"

as the Welsh gardener sings to his Jenny Jones, if you like. There cannot be anywhere so great a man as Sir Watkin, and there can be no other implement equal to a Kent plough.

Still there is no denying that the county is being gradually invaded; and this Ashford show itself turned out rather a traitor. Mr. Fowler's plough found many friends quite ready to go so far with the times; while Burgess and Key, also through the agency of Mr. Aveling, sent their reaper, and their new mower. They both did "excellent well," the mower being an especial favourite. In fact no invention on its first coming out has ever had such a run. From "the Royal" downwards there has not been a show this summer but where Burgess and Key's mower has been one of the chief features of the meeting. It has been as invariably approved, and certainly the Newgate-street firm may congratulate themselves on their introduction of two implements that have now both a strong hold on the English farmer. It is a pleasure to make such a record as this, when we know how honestly the support has been deserved. But it is not with such artillery alone that the good men of Kent are to be driven from their fastness. If cultivation by steam dared to compare with that of four horses all in a row, there were Shorthorns to vie with the famous Sussex cattle. Even the Prince Consort has sent them a bull by way of example, a grand heavy animal, now the property of Mr. Noakes, of Brockley, who has won three or four first prizes in the county with him. Then the indomitable Lady Pigott came over from Cambridgeshire with a very strong display of her forces. She took the first prize for cows in calf with one of Mr. Ambler's breeding; had another "best cow or heifer" from Babraham, and took the one premium for a two-year-old heifer with Empress of Hindostan, bought of Mr. Jolly, of Warlaby. Not to be quite overshadowed, Mr. Wells, a county gentleman, entered two yearling bulls, purchased of Mr. Douglas, of Athelstaneford, one of which, with the choice between the two, had the premier place in his class. This was Prince Imperial, a bull of great promise, and wonderfully good quality. Then Mr. Hales, of Hadlow, Mr. Betts, of Preston Hall, Mr. Morland, and Mr. Murton, of Smeeth, were also amongst the distinguished, and the show of Shorthorns was altogether most creditable and encouraging. The eye must surely want fresh tutoring, when it turns to "the other breeds," or, in other words, to the Sussex stock. There was, however, numerically a strong entry of them, and what was considered to be a very good one; but the bulls were generally superior to the cow classes, the aged animals amongst the latter showing to anything but advantage. They looked delicate, and yet evinced little breeding; were leggy, narrow, and very demonstrative as to the line of the back-bone. But keep has been short, and somehow or other a Sussex never *seems* to carry much flesh. They must, indeed, be intended more for work than meat, and so the progress of the steam plough will tend more and more to their detriment. By far the sweetest cow of them all, to our fancy, was one the property of Mr. Murton, of Smeeth; but she stood no higher than a commendation. This gentleman was almost as forward as last year with "the pure-bred Kent" sheep; although there was more competition, but not equal to what was expected of the neighbourhood. Mr. Murton entered as extra stock a lot of sixteen rams, which were put up for auction during the day, and one, we believe, sold for as much as sixteen guineas. Mr. Selby turned the tables on Mr. Stenning with some Southdowns of Mr. Rigden's blood; and Mr. Betts had the best of the few Cotswolds sent. There were five prizes for pigs, and but ten entries in all to compete for them. So that if Kent does get up a series of special classes for the Canterbury meeting, it would seem to depend on Sussex stock and long-woolled sheep.

But, above all things, the Canterbury week must not be without a dinner. The Kent people do shine here. We have seen few better managed, and seldom any one that went off with more spirit than that which concluded the business at Ashford. The attendance reached something over three hundred. There was some good sensible manly talk, well directed by the Chairman, Lord Sondes, deservedly popular hereabout as a landlord and a country gentleman. With some appropriate reference to the especial proceedings of the day, the leading topic was still the national defences, and the formation of rifle corps. Introduced in the first instance by the Lord-Lieutenant for the county, Lord Sydney, the establishment of such forces was supported by every succeeding speaker, with only one very marked exception. This was in the case of Mr. Hugessen, the member for Sandwich, who attempted to poohpooh any idea of danger, or the necessity for any further defences. The meeting, however, rose almost in a body against the speaker, who with very bad taste attempted to weary them out, after an unmistakable demonstration that they would not hear him. The Earl of Winchelsea, on the contrary, who associated a becoming system of defence with the prosperity of agriculture itself, made decidedly the most effective speech of the day. Almost every sentence showed the heart of the man was in what he said, and again and again was he interrupted by rounds of cheers. We must allow our readers to have a taste of his lordship's mettle:—"He had listened with much pleasure to the speech of Sir Richard Tufton, who, notwithstanding a French accent, had given utterance to true English sentiments (cheers). He had ably drawn a contrast between the peace and quiet and comfort existing here, and the danger and anxiety to be found on the other side of the Channel. He (the noble earl) was not an alarmist, but it was said that when a strong man armed kept his palace his goods were safe (cheers). Let us keep our palace well armed, containing, as it did, more riches than all the world put together. Many would come and seize those riches if they dared, but let us show them that they dare not (cheers). The Emperor of the French did not mean to come here—it would be the last place against which he would make a hostile attempt; but at the same time we were ready to receive him, and he did not believe there was an Englishman, even including Bright the belligerent Quaker, who would not take up arms in defence of his hearth and home (cheers). What was the use of bulls worth from £200 to £1,200 if there was not peace at home; if the farmer was distracted by continual alarms and unable to obtain those productions which fertilized the hungry acres here. That was the result of peace, but we could not have peace on sufferance (cheers). Englishmen were ashamed to enjoy it on those terms. With our army and navy in an efficient state, we could thrash any other power with one hand; and if we let down the other we could thrash all the world (cheers). The Bright party knew this, and if there were any real danger they would be among the first to come forward in defence of England's honour (cheers). The great wealth and importance of this country was owing to the peace we had enjoyed at home for so many years. It was peace which had turned a middling sheep into a model: it was peace which made bulls worth £1,200 (cheers). Look at other nations not so well favoured; their farmers, following our example, might set up a society; but all their arrangements were upset in a moment, because one autocrat gets up from dinner with something uncomfortable on his stomach and quarrels with another autocrat. In England, with free institutions, all were alike secure; the farmer did not interfere with the manufacturer, nor the manufacturer with the merchant; and that was the reason England produced in the aggregate a greater amount of wealth than all the rest of the world together (cheers). Among that large assembly of those who lived by the land, some owned it, and others worked it. The interests of landlord and tenant were the same (Hear, hear). He was happy to see that the humdrum system customary thirty or forty years ago had been done away with, and each one used his energies to promote the interests of agriculture. For these reasons, when he heard that there was a chance of having the exhibition of the Royal Agricultural Society in that district next year, he for one did everything he could to secure that object; and he was happy to say their efforts had been attended with success. He hoped that Kent would maintain its rank in the competition; but at all events, if they did not show anything to astonish Mr. Mechi and others, they would have the benefit of their experience. (Hear, hear.) There was nothing like knocking people together—they learnt nothing by staying at home, and seemed to think they knew everything by intuition. (Cheers and laughter.) The other day he went with the Lord Lieutenant to see the gunnery practice at Hythe. Before he went he thought he was a very good shot, and no man could teach him anything more; but, after he had been there about ten minutes, he began seriously to consider whether he had ever fired a gun off before. (A laugh.) Young men in a short time gave him more instruction than he should have obtained if he had gone on shooting by himself in Eastwell Park for 3,000 years. (Laughter and cheers). That was the reason he always approved and supported meetings of that sort. They might depend upon it that if twenty people discussed a subject together, their collective opinion would be better than that of any one person, however high he might stand in the estimation of himself or his friends. Independently of that, these meetings called into play all the kindly feelings of human nature, and tended to promote influences of the best and most wholesome nature. (Cheers.) The noble Earl concluded by giving "Success to the Royal Agricultural Society," with the expression of a hope that the next year it would meet with an enthusiastic reception at Canterbury. (Cheers.)"

That is the speech of an Englishman, and worth going a long way to hear. We only trust that the men of Kent will take up the points hereafter as warmly as they did in the room. In fact, the Ashford dinner went well to the finish. Lord Sondes himself dwelt very ably on the position of the Society; Mr. Tinlay Dun, as one of the judges, on the character of the show. And if the interests of landlord and tenant are not well united in Kent, we must not judge from what we saw. The County Agricultural Society may do a deal of good in many different ways, although we suppose that next year its meeting will merge into that of the greater body.

THE MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

MEETING AT LIVERPOOL.

Like many others, this Society has now for some years been gradually increasing in influence and importance. It has, in fact, outgrown its own strength. It is clearly embarrassed with its own riches. It has more funds and more general support than it really knows what to do with. The committee might answer with the Yankee skipper when hailed as to who commanded his ship? "Well, I *undertook* her, but she's a little too much for me!" So it most assuredly is with the Manchester and Liverpool Agricultural Society and its Direction. In all our experience of such meetings we never remember such a one as this. Never was there such a thorough jumble, such helpless and hopeless mismanagment, and the elements of a good show so completely negatived by the want of some order and proper provision. The arrangements—that is, the erection of the shedding and the adjustment for the stalling of the cattle—were being calmly proceeded with when we left on the Friday afternoon, the last day of the meeting. On the morning of that previous, when the stock came in, there was nothing ready for them, and one of the exhibitors told us he had to set to work and put up the pens for his own sheep. There were the most valuable cattle hanging about, without either place or protection. There were horses that their owners or grooms, in very self-defence, as it were, rode up and down, and in and out, at half speed. And in the midst of all this, as if by way of appropriate commentary on the proceedings, one of the fiercest of Lord Derby's Brahmin crosses broke loose and went full tilt through the ground. He chevied one unfortunate, tossed another outright, and at length with some sense of justice charged bodily at one of the directors, who very narrowly escaped. As it was, the horn of the brute cut through the catalogue which the official had in his hand. Even this compliment evinced some discrimination on the part of the offender; for, if the stewards were not much to blame, the catalogue of itself was quite enough to confound them. Surely there never was such an olla podrida ever issued before! There were open-to-all-England prizes, and tenant-farmers' prizes, and landlords' prizes; and then there was open-to-all-England and tenant-farmers, and so on, over and over again. In due course there came horses, cart-stallions and thorough-bred stallions, and mares and pairs, and colts and fillies; and then there were sheep, and pigs, and roots, and poultry. And at last, when you came to the end of the list, you had to go through it once or twice more. There was a series of "special local prizes" to follow: the phrase "local," when properly interpreted, meaning "open to the United Kingdom." This second, third, or fourth division—we can scarcely say which it was—included classes of old and young bulls, of cows and heifers, of cart-horses and thoroughbred horses, of colts and fillies, of working pairs, of pigs and poultry, and, in short, as we have said, nearly the whole thing over again. In the course of our wanderings we noted at least five first-prize stallions, as best adapted for agricultural purposes. There must have been nearly as many shorthorn bulls similarly *distinguished;* if, indeed, such a word is in any way admissible where number eight hundred and something stood side by side with eleven hundred and odd, or where often enough the animals were heads and tails with each other, some in the line and some out of it. As for the horses, they just went anywhere or anyhow, many preferring to recognize no distinct standing whatever. And certainly these, for personal considerations, had the best of it; for Friday was a somewhat windy day, and the loose half-secured canvas was continually flapping about the heads of those tied up. At length a lot of it came down with a crash; fortunately, as it was said, "without any accident to anyone." But only fancy a number of high-conditioned horses tried in such a way—hanging back and breaking their head-stall reins, and threatening every moment either to injure themselves or some of the spectators. There was a fine of five pounds to be paid by any exhibitor who took his entry away before the conclusion of the meeting; but surely this was conditional on proper accommodation being provided. On such an understanding nothing can be fairer nor be more judiciously enforced, but without due provision we much question if the penalty could be recovered.

We must repeat that it was a good show spoilt, for in the horses and cattle classes there were some superior stock sent. At the same time the former, especially, were quite a lot of all sorts—good, bad, and many of them terribly indifferent. The Shorthorns were more generally commendable, some of the tenant-farmers of the district exhibiting with great credit to themselves, and really standing very well with the famous herds that came in competition for the all-England prizes. Although, rather remarkably, neither Colonel Towneley nor Mr. Eastwood made an entry, Lord Hill, Captain Gunter, Mr. Ambler, Colonel Pennant, Mr. Jolley, the Messrs. Turnbull, and others nominated and brought some of their best animals. Captain Gunter, however, was the lion of the meeting, and took with his attractive army of Amazons every premium for which he competed. These included the first prize for two-year-olds with Moss Rose, the first for yearlings with Duchess 77th, the first for pairs of heifers over two years old with Fair Maid of Wetherby and Princess Royal, the first for the best pair over one year old with Duchess 78th and Duchess 79th, and the first for heifer calves with Duchess 80th and Nanny. The class of heifers over a year old, although not a large was a particularly good one, headed by the Captain with a couple of the best quality in the show. These are *twin* Duchesses, out of the 67th dowager of that family, so that perhaps never was there so complete or so fair a match. Mr. Turnbull, who was placed second, confessed himself to be fairly beaten, notwithstanding that one of his two, the Lady of Bonhill, was the prize heifer at Edinburgh, that we then spoke of as very sweet and neat looking. Still "the talk" of the Grange herd was the yearling Duchess 77th, who showed in great form, and was much nibbled at. Six hundred was offered by the Australian market, but another hundred held out for. Lord Hill was more accessible, and *his* first-prize bull, bred by Mr. Bate, of Kelsterton, goes to the fifth quarter of the world, at a long price. But the best of the prize bulls was Mr. Dickinson's Prince of Prussia, which just at present is in great repute in Lancashire, having very recently at another local meeting run Royal Butterfly so very close, that people said the Colonel did not care about meeting him again. Mr. Dickinson has the further credit of having bred this promising young bull himself, and the dam and an own brother were both also at Liverpool. He is by a bull bought very well at Sir Charles Knightley's sale. The Prince of Prussia is, above all, remarkable for a famous level quarter; but he is hardly as perfect before, and his head, though placid and good-tempered, has scarcely grandeur enough for a male animal. Colonel Pennant's bull, of Booth blood on both sides, fairly beat him for this one point, although on the whole not entitled to more than the good second place he held. In the next class Mr. Ambler was successful with the white "Talleyrand," and Mr. Jolley second, and highly commended with the two young bulls he entered; but there were only four in the class. In the yearling bulls there was actually no competition, and Mr. Ambler walked over with "Great Eastern." In fact, the prize-sheet was so cut up, and so divided, and so sub-divided — There were so many opportunities for a man placing an animal with "a certainty" that almost all wholesome rivalry was out of the question. The Society, as it is, suffers chiefly from a plethora of funds. By another year let them learn how to use these. Let landlords, tenants, and breeders come all together. Let them offer a series of good valuable open premiums, and they may have one of the best and one of the most interesting meetings in England. Instead of this, the money is now frittered away in classes that bring entries of three, and two, and four, and none, and one, and so forth. Such an occupation of our columns would be altogether impracticable, but if we did give the prize list it would be simply as a curiosity. As it is, we are afraid we shall be unable to do justice to the many good animals we, literally, almost tumbled over, but we must mention such men as Mr. Atherton, Mr. Lowndes, Mr. Norris, Mr. Higson, Mr. Forrest, Mr. Price, and Mr. Parr. Mr. Higson was especially prominent amongst the tenant farmers with his young bulls Towneley and Knight of St. George, and Mr.

Heawood, of Woodville, showed a prize lot of four as good roomy useful cows as one need wish to see, all duly numbered and pedigreed. These collections of cows were, indeed, generally noticeable for the size and quality with which they were made up. Mr. Atherton stood second amongst them, while Mr. Parr and Mr. Aspinall were each highly commended for so reliable a test of what they were doing with their herds.

Beyond the Shorthorns the stock only included a few Channel Island cattle, one or two fat beasts, and the late Premier's pair of Brahmin crosses. The latter were housed-in almost too securely at last, for it was difficult to get a peep at them. The death warrant, however, of the one which got away was signed before the meeting was over. He had broken his horn badly in his jousts about the ground, and a Liverpool butcher announced himself as the purchaser.

Notwithstanding that the sheep show was said to be larger than usual, the Society makes no great stand in this way. Mr. Smith, of Sutton Maddock, and the Shropshires had the best of it. He took six prizes with six entries, and one of his rams was as good a specimen of the sort as we ever saw. He was particularly true before, while his head showed far more distinctive character than is usual; and we were pleased to find Mr. Davis making a study of him. Sir Robert Gerard had some fair Cotswolds, and Mr. Harland, of Bradley, Shropshire, the best of the Leicesters. The entries of sheep, however, were, on any reading of the word, by no means great, and the same may be said of the pigs. Mr. Harrison and Mr. Hindson, indeed, had it nearly all to themselves; the former giving this section a strong lift with the Warwick and Edinburgh prize boar, and a sow nearly as highly honoured. There was a root show, which we believe was never *quite* arranged; and another, of poultry, that we fear hardly commanded the attention it should have done. A Liverpool fowl of the pure Hotel breed has neither size, flavour, wing, nor breast, and he is certainly susceptible of a little improvement.

If we plume ourselves on anything it is on being able to get out of a horse's way, or, in other words, to look him over without courting absolute danger. But they put one to the trial at Liverpool. Every man who had a nag that he fancied could go set him going, and kept him going. As, moreover, some of the premiums had to be awarded to anything that had ever looked through a bridle, there was no end to this kind of display. In all the flush of prize cards they came on you with shortest of *hie-hies!* and as you deferentially turned out of the way, there was a thorough-bred one playfully lashing out at you—or a ton weight of agricultural purposes ready to stamp your toes off—or a chawbacon with a long hold on a young one that saluted you there and then with both heels. Luckily the judges were at work during the greater part of the first day coram populo; so that by joining the ring we did get a chance of seeing what was what. It must be remembered that here, too, it was "all over again and again"—prizes for the best stallions—and prizes for the best stallions. But we must really confine ourselves to what is worth recording. The open competition, then, produced two very good entries of cart and thorough-bred stallions. In the first of these were included England's Glory, the prize dray-horse at Warwick; Matchless, the Salisbury horse; and Mr. Robinson's (of Broughton) Napoleon, which is said to have taken no less than fifty-nine first prizes "about the country." The judges here gave him another, ranking England's Glory second to him, and taking no notice whatever of the grey. There was a good deal of debate over the award, and Mr. Taylor was so offended that he took his horse away after the first day's show, despite the five pounds penalty. Napoleon is unquestionably a fine topped horse, with a beautiful neck and shoulder, but his hind leg action is bad, and his joints but indifferent: when out, England's Glory had quite "the pull" of him. Matchless has not worn well, but we hear he has had a hard season. Colonel Pennant made an exchange this year with him for the noted Nonpareil, supposed to be the best cart-stallion we now have. The thorough-bred ones included the elegant Backbiter, the game Alonzo, the showy Caledon, and the well-known Yorkshire horse, Poynton. The judges preferred the last-named of these, an animal of great power and substance, and not so coarse-looking as he once promised to be. Old Alonzo, astonishingly fresh after all his hard work, they placed second; and then highly commended the other two. The roadster stallions ran up to ten entries, and the selected were both of much the same style—more of the riding-horse or hunter than the famous Phenomenon or Fireaway trotters, which reached no higher than commendations. The first prize horse, Mr. Cockshott's Harkaway, took similar honours only the day previous at Keighley, in Yorkshire. Mr. Fowler, of Preston, was second with Pallister; and Mr. Burton and Mr. Hairsine were commended—the latter for the prize horse in this class of last year. The hunters were only a middling entry; a good-looking brown horse of Mr. Worthington's, ultimately the selected, had no action, but otherwise he was a long way the best of them. The brood mares were as ragged a lot as ever we met with, and the young stock was made up of such odds and ends that we honestly did not care to identify them. The Liverpool and Manchester Society offers prizes for young thorough-bred stock, the policy of which we can scarcely see. Of course you must have thorough-bred sires to get hunting stock, but what can come of premiums to thorough-bred colts and fillies? If they are thought good enough to race they will be put into work, and the Liverpool Society will see no more of them. There can be no complaint on this score with the entry of fifty-nine, for a worse set of weeds were never brought together. Plainly, a good-looking thorough-bred yearling or two-year-old colt is too valuable an investment to hazard for half a week or so in a show yard, especially when they take such care of him as Messrs. Ellis and Co. did here. With a cruel attention to the importance of their position, the catalogue opens with an imposing list of the directors of the show, nine or ten for the Society's prizes, and nine or ten more for the Local or Special. In very charity we shall not repeat it.

One of the features of the horse show was an American, "of the Black Hawk Morgan breed," shown in the first instance with the roadster stallions. Obtaining little attention amongst these, he was put into a light go-cart, and rattled about the ground by his owner, Mr. M'Kie, of Washington. "Cambridge Chief," certainly displayed himself here to far more advantage, twisting and turning when going at a great pace on the slightest hint from his driver, although with nothing more than a plain snaffle in his mouth. One of the greatest attractions of the same section was the pair of cart mares sent by Mr. Farrington, of Bickerstaffe. They were wonderfully handsome for their purpose, and at the same time of ample power and weight, with a beautiful, clean, flat leg, neat heads, and the promise at any rate of light clever action. The one stood eighteen hands and an inch, and the other seventeen three; so that they were declared here to be the very thing for a plough-pair team, the big one in, and the other out of the furrow. There was a further sprinkling of useful agricultural horses, mares and young stock, but a large majority of what was shown was very moderate in its calibre; and the President, Lord Sefton, was openly censured by Mr. Hannam, one of the judges, for the stallion which he intended should, according to the conditions, serve the mares of his tenantry. Still, we believe his Lordship's horse took a prize!

An exhibition of implements of course formed an important part in the proceedings. The trials, however, which took place the day previous to the opening of the show were, we believe, confined to cultivators and combined mowing and reaping-machines. Coleman, of Chelmsford, took the prize for the first named of these, while Hill and Smith, of Brierley, were highly commended for their performance. The leading firm in these parts, that of Messrs. Richmond, Chandler, and Norton, then came on and took the prize for the mower and reaper with one of Wood's invention; as well as the prize for the best two-horse cart, and other medals and commendations, including three for Howard's ploughs, which were exhibited in their stand. Cambridge, of Bristol, Picksley and Sims, Sawney of Beverley, Keyworth of Liverpool (with one of Clayton and Shuttleworth's engines), Forshaw of Liverpool, Clarke of Formby, Tinker of Penrith, and a number of other more local makers, were also distinguished either by medals or commendations. These went, as often as not, for general collections, and the interest of this department of the show was not much increased by the manner in which the premiums were awarded. Indeed, it was not known until late on the Friday to whom such honours went, so that much of the effect must have been lost. Not that any great excitement appeared to exist on the subject. As with the stock, the management and arrangement of the implements require a deal more attention and revision. Their disposition was quite on a par with the wild and primitive fashion in which almost everything else was done.

Saving only the dinner, which was well attended and well served. The toast list, moreover, was judiciously arranged. There was not too much of it, and those who had something to say about the business of the day "came on" in good time for a hearing. As a consequence, Mr. Grey, of Dilston, and Mr. Hannam, of the Yorkshire Society, who spoke for the judges, were both listened to with due attention and respect. We append a summary of what they said, from which it will be seen that Mr. Grey kept to his last year's text on the manufacture of beef and mutton, and that Mr. Hannam, although a judge of horses, dwelt almost entirely on the uses of machinery. We should prefer to hear judges go more to the duties they had been employed on. In fact, a judge's speech on such an occasion should be somewhat of a report of what he had seen. We can sincerely congratulate Lord Sefton on the way in which he discharged the office of chairman. Almost entirely inexperienced, as at his age he must be, in such matters, he was never at fault; and one of his illustrations, in proposing this very toast of the judges, was peculiarly happy: "When I was at Eton," said his Lordship, "being but a light weight, they used to put me to steer. Well, if the boat won of course it was no thanks to the steersman, but if she lost it was sure to be his fault. I am afraid it is a good deal the same with the judges. If an animal wins it is no thanks to them; if he don't, they are certain to be blamed for it." How hard this hits on all the "rot" and absurd abuse muttered about the judges during this very summer! Let us see, however, what they have to say for themselves.

Mr. John Grey said the judges had done what they thought best, but their duty on such an occasion was not an easy one, when the competition between animals was so close that the decision depended upon the very shade of an opinion. Some questions might be reduced to the statement of a mathematical proposition, but an excellent property in an animal could not be stated so easily, and required a great deal of explanation, and a delivery on such a subject demanded maturity of judgment and long experience. It was not a difficult thing for a man with a correct eye to tell the best form, and to see that within certain straight lines there was a greater solid content of meat; but a man required by putting his finger on an animal to tell the quality of the beef or mutton, and whether it was of that kind which would quickly bring the animal to maturity with economy of food to the farmer, to whom it made a material difference whether an animal arrived at maturity in eighteen months or two years. He thanked them for the pleasure of seeing this glorious exhibition, with so many animals in such a state of perfection. True, their description of breeding and feeding might not suit every farmer; but yet each was indebted to those who improved their own stock, for it was that which the British farmer was peculiarly called upon to look after. In order to profitable breeding it was necessary to secure the best description of animals, which, by coming to early maturity, would produce the greatest remunerative return, and to combine with this care that good cultivation which would produce all the year round a succulent, nutritious food to bring them to perfection. Butcher's meat and wool were the most remunerative portion of the British farmer's produce. We were brought into competition with many countries in the production of grain; many, from their soil and climate, were better calculated to mature it than was ours; but there was no country in the world better calculated than ours to produce butcher's meat; and it was a happy thing that our operatives were now fed on that substantial food beef and mutton. Long might they enjoy it. It used to be the case that butcher's meat once or twice a-week was a great treat. If it was the most remunerative produce in the country, it was the duty of farmers individually and nationally to do their utmost to feed and maintain the increasing population of this country upon its produce. He had observed that a description of stock considered to be most remunerative in other counties was little cultivated in this: he meant sheep, which gave not only carcase but wool, and wool sold and would continue to sell at a remunerative price. But sheep would not thrive upon rushes, nor were they partial to damp beds; but they required that land should be drained. In his progress here he saw flocks in fields luxuriant in rushes. He knew well that those farms commanding the greatest advance in rent were well stocked with sheep. Whilst we had to compete with many countries in the production of wheat, which could be carried by steam anywhere, there was no country which could compete with us in our oxen and sheep, and it was these he would recommend to the farmer. He did not speak to the amateur or gentleman, but to the rent-paying farmer, who kept his land to pay his rent and support a family; that man would he recommend to attend to the growth of his roots and the description of stock he kept. By improving his cultivation he would improve his stock and increase the amount turned over year by year; so that the sooner stock arrived at maturity the better would it be for the country and for the farmer's pocket.

Mr. **Hannam**, secretary to the Yorkshire Society, also returned thanks for the toast. He looked with great interest to the general introduction of machinery, which would do away with unproductive labour. He did not believe that in the agricultural districts any such feeling existed between employer and employed as that which did among a certain class in the metropolis. They found that the more machinery was introduced to do the unproductive work of the farm, the better was the employment of labour, and the lighter the task upon the physical energies. If a farmer paid thirty men to thrash his wheat, whatever wages he gave them must come out of his capital, for it produced nothing. There was no improvement in the raw material, which went out of the barn such as it came in. It was not like wool being converted into cloth—it was still wheat, and so much physical power had been wasted. Mr. Hannam then humorously referred to one of the horses exhibited by the Chairman, and remarked that as his lordship had spoken of the need for improvement in all things, there was some room for improvement on his lordship's part as regarded some of his stock.

The following is a complete list of the gentlemen included in the toast of

"The Judges."

Cattle.

John Grey, Dilston, Northumberland.
John Mackenzie, Barn Hill, Dumfries.
John Patterson, Hall Beck, Ulverstone.
John Unthank, Netherscales, Penrith.

Horses (and Saddlery).

Richard T. Beckett, Oulton, Tarporley.
Edward Sale Bell, Burland, Howden.
Stephen Cox, Stamford-street, Blackfriar's-road, London.
John Hannam, Kirk Deighton, Wetherby.
John Knowles, Lytham.
William Mason, Waddesdon, Aylsbury.

Sheep and Pigs.

Joseph Beach, The Lower Hattons, Brewood, Penkridge.
John C. Etches, Harley Thorn, Newcastle-under-Lyne.

Implements.

John Jephson Rowley, Rowthorne, Chesterfield.
William Palin, Stapleford Hall, Chester.
James Teasdale, Liscard Farm, Cheshire.

Poultry.

Thomas Chaloner, Whitwell, Chesterfield.
Richard Teebay, Fulwood, Preston.

Seeds and Roots.

John Nickson, Hale, Warrington.
James Wood, Haigh, Wigan.

Cheese and Butter.

William Tilston, 15, Redcross-street, Liverpool.
Henry Warburton, Withy Grove, Manchester.

Consulting Veterinary Surgeon.

B. Cartledge, Sheffield.

ON ENTERING FARMS IN SPRING AND AUTUMN.

Two periods of the year have been chiefly adopted at which possession is taken and vacated of farms or land —on the 12th of May and on the 29th of September—and are called respectively the May and Michaelmas entries. The former term prevails over the whole of Scotland, and over an extent of England; the latter is adopted over the southern counties, and in some other places of the same custom. Entries are made in November and March; the former being very similar to the Michaelmas term, and the latter progresses towards May, which affords the greatest convenience, and the easiest transfer of the occupation of the farm from the outgoing to the incoming tenant. That season of the year divides the labours and productions of the farm in a more complete manner than any other period, and is therefore preferred for the special purpose as a spring entry.

When the month of May arrives, the grass crops of the year begin to grow in pasture and in hay, and the entry is most direct to these productions by the incoming tenant. The wheat crops have been sown during the previous autumn and winter by the outgoing tenant, and also the oat and barley crops of the spring on the ploughed leys of grass, and on the lands that have yielded a crop of turnips during the previous season, and now receives grains and grass seeds.

The ricks of grain of the former year have been all thrashed and manufactured into sale and into dung in the cattle-yards, in which the animals have consumed the root crops, in the same number of beasts and quantity of roots as in the past years of occupation. The dung and any straw left for summer use pass into the hands of the incoming tenant free of any charge, the dung being carried to fermenting heaps in the fields for next year's green crop fallows ; the labour of carriage is paid by the new tenant to the old occupier, and also the cost of ploughing during winter in the usual way the lands for next year's fallows for wheat or green crops, and of spring ploughings and harrowings to prepare the lands for potatoes, beet, and Swedish turnips. Stable-room for two pairs of horses is given to the new tenant from the 1st of January, in order to carry dung, stones, and to perform ploughing, as may be necessary. The incoming tenant buys the growing crops of grain by a valuation made before harvest begins, and pays the cost of the grass seeds that were sown in the previous spring, from which hay and pasture will be derived to him. The labour of sowing is also paid. Artificial manures, as bone and guano, are paid by a tenant-right of three years, and lime in the same way.

This arrangement of outgoing and incoming creates the smallest possible amount of valuations to be paid by the new occupier, and on that account the term of entry bears the highest merit of commendation. The custom has been, and yet prevails, that the incoming tenant assembles a number of ploughs from the customary charity of the neighbourhood to winter-plough the stubbles for the year's fallows, which is always very imperfectly done, from the hurry and confusion, and from the lateness of the season, arising from the desire of having a long day, to get much work done. No subsequent working of land will compensate the want of the early winter ploughing ; and the provision is most beneficial which enacts, by a clause in the lease, that only the stubble grounds are ploughed in the usual way and proper season by the outgoing tenant as if on the farm was intended no change ; the labour to be paid by the incoming tenant at the current rate of the country, and also the cross ploughing, harrowing, and rolling of the spring fallows for green crops. The purchase of the growing crops just before full maturation by the incoming tenant prevents the unnecessary carrying and fetching of grain and straw to and from the farm, and also every appearance of change of occupation, with much trouble and annoyance to both parties. It is a very beneficial regulation. The carrying of the dung from the cattle-yards to the fermenting heaps in the fields is an invaluable benefit, to prepare the dung in proper time, as no future management can regain the lost opportunity. And two pairs of horses being lodged on the farm for two or three months previous to the 12th of May enables the planting in proper time of potatoes and beet, with due preparation for Swedish turnips, which require to be sown about the time of entry. The outgoing tenant performs the operations of ploughing and harrowing, and the lodged horses execute the detail work.

The enactments have very seldom been introduced into a lease, and have been but lately mooted, that the winter and spring ploughing of fallow lands, and the carrying of dung into heaps in the field, be done by the outgoing tenant, on being paid for the labour ; and that the growing crops of grain are bought by the new occupier, which is a purchase, and not a valuation. But the adoption of these regulations is certain when known and duly considered, as the removal is effected of much loss and inconvenience. My own very long and extensive experience in practical farming most strongly exhibited the loss incurred by the late winter ploughing of the stubbles, generally done in April, and from the dung not being moved from the cattle-yards to the fields in the proper season. The inconvenience is wholly unnecessary of selling growing crops of grain in patches by auction, and of the new occupier bringing from distant sales the grains and straws in return. All these losing customs are beneficially removed.

Recent ideas have proposed to give the outgoing tenant one-half of the value of the farmyard dung that is made during the last winter of occupation, and which is placed in heaps in the next year's fields of green crop fallows, and to give one-third of the value of the dung that was applied to the turnip crop of the previous year. This proposition is an introduction, instead of an abolition, of valuations ; and when the farmer gets the dung in gift on entering to the farm, and will get the same privilege on the farm to which he removes, the balance is most justly true, and no loss is incurred or any advantage gained. Nothing can be more simple or easy than to give the dung "free," except the labour of preparation in being carried to the heaps in the fields, and that a special clause be inserted in the lease that an equal number of cattle be kept during the last winter as was maintained during former years. The valuation for lime during the last three years will not very often happen, and the use of artificial manures only on extensive turnip farms ; so that, in the majority of cases, the only valuation is the grass-seed bills of the previous year, with the labour of sowing the seeds and of ploughing the winter stubbles and spring fallows, and of carrying the farmyard dung to heaps in the fields. The dung of the yards is a production of the farm, and reserved for its use ; composed of excrements and straws, from which the farmer has sold the grains to repay the expenditure, it remains in bulk as a stationary article. The direct acts of labour claim a specific value, as the performance is evanescent, and disappears from view. The one article is permanent, the other vanishes.

The great object is to obtain a perpetuity of occupation in farms of land ; and since the nature of the business denies this absolute attainment, the next point raises the nearest approaches to it by continuing the resemblance in easy changes and simple transfers of occupation. For this purpose the connection must be made small as possible between the outgoing and incoming tenant, and no obligations must be imposed that can be avoided. The essential performances are to be made agreeable and convenient to the outgoing tenant, and valuable to the new occupier; the execution to be in the regular business of the former, and appear to be for his own behoof; the incoming tenant to have the work done as if executed by himself, and find everything in readiness for the further progress.

Not the smallest work must be in arrear, but done in the proper time by the labours of the outgoing tenant, and by the two pair of horses of the new occupier, which are lodged for the purpose of executing the detail work of the farm. Every arrangement must bear upon the main point of a simple change and an easy transition.

The Michaelmas entry to farms, on the 29th of September, finds the entire grain and green crops in full maturity, ready for manufacture and disposal, and a very large confusion ensues. The houses and grounds are vacated on the day of term. The crops of grain ar reaped and stacked by the outgoing tenant, who keeps the use of the barns during winter, in which to thrash the crops, of which the straw is delivered free to the new occupier for carrying the grains to the market, or at a market or fodder price. The fallow grounds for autumnal wheat, and the lands planted with green crops, are valued in the labour and manure applied, and in the rent and taxes for one year, and the amount paid by the new occupier to the outgoing tenant, and any new performances that seem to have a prospective value. A portion of underwood, copse, or coppice is generally attached to the farm, which is cut periodically by the tenant for the special purposes of use. On quitting the farm, the years of growth are valued, and paid by the new occupier, and relatively to the cutting in twelve or fourteen years. The timber trees are reserved by the landlord. In this way, the whole labours of a year are valued in the performance, and for hire by another person.

This term of vacating and taking possession of farms raises a large amount of valuations, to be paid in money by the incoming tenant; and it forms a very chief consideration in calculating the amount of capital required for the management of the farm. It is an unnecessary and useless expenditure, as other terms can be found which avoid the large intermixture of quit and entry. By paying rent and taxes for the fallow grounds, the incoming tenant is made the occupier of lands he never knew, and pays for labour he never superintended, and for manure of which he never saw the quantity or the quality; and pays the estimate, the green crops being good or bad. The occupation of the barns during winter for thrashing the crops often gives occasion to very unpleasant collisions; and the straw being produced without consideration of the timely use is diminished in value, as the thrashing is regulated by the will of the gone tenant, not by the convenient wish of the new occupier. This want of control inflicts a loss in the use of the straw. When underwoods are half-grown or less, years must elapse before any return is got from that quarter, and the minor articles may be worth little to the system of use that may be adopted. The entry has been improved by landlords retaining possession of all woodlands, the farmer buying at periodical sales the wood required for fuel. A further improvement may be effected by the incoming tenant purchasing the standing crops of grain, as in the May entry, which would sever all connection during the winter of thrashing.

The inconvenience is considerable when the former occupier has removed to a distance, and has business of some value to attend, in thrashing and marketing a whole year's crop of grains. The hay-ricks are valued, and sold at a current price to the new tenant. When these alterations have been adopted, the tillages of the fallow ground still remain to be valued; and as the charges are only now mentioned, and nowhere yet introduced, the entry comes to be viewed, as originally stated, in paying for partially-grown woods, the tillages of the fallow crops, and in the use of the barns during winter in which to thrash the way-going crop. This mode of entry is yet almost universal in the southern parts of England; and, having long obtained a footing, the custom prevails without much animadversion on the subject.

The entries to farms at Martinmas in November, at Candlemas in February, and at Lady-day in March, are worse adapted for the purpose of easy transfer than the Michaelmas term; and, in order to lessen the amount of charges, it is stipulated what articles are to be paid for, and what go free from the old to the new occupier, thus acknowledging the grand attainment that the change of occupation be made easy as possible, and not burdened in the extreme. At the winter-terms of entry, the business of the farm is very largely intermixed, and does not admit a separation without bearing charges for the entry, and then many concessions, to make the burden at all tolerable.

Each entry prescribes its own customs, which are all liable to the same objections that are produced by the time of the year at which the vacation takes place and the entry happens. An unnecessary outlay of money is made, and much business that is not required: the interest of the incoming tenant demands the winter-ploughing of stubble-grounds for fallow, and the carting of dung to fermenting heaps, all in due season; but the proprietor has to settle that the farmyard dung remains for the use of the farm, and the incoming tenant receives it, accordingly, free of charge, as a fixed article of expected inheritance.

The comparison of entries, in the advantages and disadvantages, is very justly laid between the autumn term of Michaelmas and the spring entry in May; the winter terms of November, Christmas, and March being included in the Michaelmas entry, as the conditions are very similar, arising from the circumstances that exist in the business of the farm. Valuations for tillages are made at all the terms, except in May, modified and changed by the peculiar customs of the locality. At the Michaelmas entry, the incoming tenant finds an amount of money to be paid in ready cash, for tillages and dung, rent and taxes, being articles not required to be purchased for any specific use, and therefore not an essential performance. In May, it is imperatively necessary that the stubble-grounds are ploughed in the proper season, and that the dung be carried from the cattle-yards to heaps in the fields, to undergo the preparation for use to green crops. The dung is free of any price, as a permanent article for every succeeding occasion of use on the farm. At Michaelmas all collections of dung are valued; and generally much exertion is used in making gatherings of such articles, in order to raise the amount of valuations. Then comes the valuation of underwoods; and the custom of some districts goes back to the previous year, and includes the value of the unexpired benefit on turnip and clover lands, under the name of "half-tillages." This large amount is reduced to at least one-fourth of the sum in the May entry, for ploughing stubbles and carrying dung, and the grass-seeds of the previous year. On this point, the advantage is very largely in favour of the entry in May, as the difference is great between the sums of valuation, and the largest amount is paid for attachments, and the least sum for the most valuable essentials. In May, the full and entire possession is obtained of houses and lands on the day of entry; the connexion is wholly severed by the payment of labour performed in ploughing and carrying dung; and the purchase of the grain-crops is a subsequent transaction of common traffic, made by stipulation. At Michaelmas, the incoming tenant pays rent and taxes for one year of the fallow lands, when he holds no possession, and the outgoing tenant retains the use of the barns for six months after the tenure is vacated, thus forming a very mixed possession of the farm for a whole year. This usage is very inconvenient, and gives occasion to many misunderstandings and unpleasant collisions. The tillages are not performed by the direction and superintendence of the person who pays the value; and the quality of the work cannot be seen. In May, the ploughing is evident, and the dung, if properly heaped. A very considerable secondary advantage is found, on these latter points, in favour of the May entry, which retains the superiority in making the easiest transition and least perceptible change in the occupation of the farm. The amount of valuations subtracts a large sum from the cultivation of the land; and, though it be duly calculated in the estimate of the farm, yet the ready payment of the amount claims the first place, and other most necessary demands are postponed. Very hurtful consequences follow this arrangement of entry: a due provision of money for its demands does not remove the objection of paying a long sum for attachments, and not wholly, as should be, for essential performances. There is required, after the amount of valuations is paid, the quantity of capital usually allowed to manage the undertaking, which will be the greater in amount, in proportion as the valuations are reduced. It may be said that this sum only constitutes the foremost item in the capital of farming; and, if it was removed, the calculation would be the same, and only divert the means into different channels of use. But it hinders the use of small capitals, by barring the access of operation; and it squanders large capitals on unnecessary points of expenditure.

The general conclusion recommends the entry to farms on the twelfth day of May, as the most convenient, the easiest, and the most simple. It severs the connexion on the day of entry; and it values for payment only the ploughing of stubble-lands and the carrying of dung, there being included the cost and sowing of the grass-seeds of the previous year. The hay and root-crops are wholly consumed; and the farmyard dung, with any thrashed straw, pass "free of charge" into the hands of the new tenant, as an article of permanence at all times for the use of the farm, and never of vendition or commerce between old and new possessors. No arrangement will ever be found that is more just and simple.

The chief consideration in entering to a farm of land at any term is, the possession of sufficient capital for the purposes that demand an impelling force of money; and an equal provision remains to be established in a reserve fund of a third, or at least a fourth, part of the aggregate sum. This amount lies at interest, and is ready and available at any time to strengthen the weak points of application, to meet any exigencies of demand, and to supply accidents and casualties that attend active undertakings of any kind. Of all the evils that can afflict landed property, no damage is sustained in any degree so hurtful as the want of capital by the proprietor who enjoys the heritage, and the insufficiency of means in the hands of the farmer to reap the temporary benefits. The first want prevents the necessary furniture being provided, with which the temporary use of the lands can be made fruitful; and the second want debars the realization of the value of the furniture that has been provided. And both wants are joined in preventing the further improvements that are required during the progress of cultivation, and in which both parties are agreed to certain specific portions of the undertakings. Hence the irrefragable argument, that landed property be farmed in possessions large rather than small, and able to improve itself from an amount beyond the social provision of the occupants. The greatest injury to landed property may be sustained from this source, as it forms the base of the edifice to be built by other means. The want of capital to use the foundation completes the irreparable detriment that is inflicted. Both wants are equally hurtful, as neither can produce the proper fruits without the other. The intending farmer must exercise a very careful and most steady judgment, that an eagerness does not carry his efforts beyond the power of his means, and to overstep the bounds that are prescribed by practical skill and a sober discretion. Professional experience and local knowledge will be able to determine the amount of the necessary capital, which will vary with the circumstances of country and districts. The accidental circumstances of several abundant crops in succession, and of high prices for a time, have sometimes produced large results from small means; but the exception is rare, and constitutes no foundation for calculation.

These events are the chances of business, and not the grounds of it, and cannot enter into any estimate of an undertaking. The full means must be allowed, and ordinary returns calculated.

The possession of a reserve fund constitutes the safety of any business, whence are drawn the reinforcements to any point of weakness, and the supplies to fill up the losses that occur from accidents and misfortune. From want of a reserve, very many undertakings are wholly ruined, by reason of the whole force being expended at once, and no supplies being left. The least accident or misfortune deranges the whole operations. One weakness creates others; the infection proceeds; and any weakening of one point to strengthen another, produces a universal diminution of the necessary force. Losses must be repaired from a special fund, that is wholly separated from the chance of accidents, and placed independently, with a ready and available freedom. A strong reserve that is ready in hand, and timeously used, is a most effective implement, and more powerful than the first application of force. No professional skill, no energy, no activity, no extraordinary display of other sorts, will compensate for the want of sufficient capital. Much, no doubt, may be done; but the controlling circumstances still remain; and, however the force may be thwarted and warded off for a time, the irresistible power will at last prevail. It is the first, the second, and the third requisite that a capital is provided that is sufficient for the purpose of cultivating a farm of land, supported by a reserve fund of one-third or one-fourth of its amount.

The young farmer must be careful to place upon the land a quantity of strength that is able to perform every operation of necessary work in the due time and season. The force must be located on the farm, in order to be always ready and under command, and kept in full condition and efficient vigour. The want of sufficient strength is equal in disadvantage to the inadequacy of capital. The former arises from the latter; and both proceed from a desire of effecting results from small means. At the same time, all superfluous applications are to be avoided, which consume and devour a substance, without returning an adequate compensation. Economy must be practised, but not the misunderstood meaning of the word, in a parsimonious insufficiency of means to perform any object, but in the true and just acceptation, of getting things not cheaply done, but well done. That is true economy which adapts the just means to the end, in order that the fullest result may be obtained. Niggardliness and lavishness are the same departures from the meaning of the word. The object to be attained is the chief consideration, and the ultimate result the value and possible realization; and then follows the calculation and organization of the means that will be required for the undertaking. No extravagant views must be entertained, but sober discretion and sound practice, and such conceptions put in force as can be supplied with means from the available funds of use. A reckless enthusiasm must be sobered and restrained: a freezing niggardliness must be disregarded and wholly expelled.

It is an object of importance that the grass and root-crops of a farm are not attempted to maintain a larger number of animals than can be supported in good condition, and advanced into a fattened maturity or into the thriving progress of the store flocks and herds. Pastures must be understocked, rather than pinched in the maintenance afforded by a scanty herbage: the bite of grass must be ample, and procured without unnecessary trouble and fatigue. The winter provender must be ample, and more than adequate for the number of beasts. Waste need not be incurred, nor must scantiness be adopted. The farmer will provide his herds and flocks from the best breeds of the locality, which, bearing the identity that ever prevails between the soil and its productions, possess a vast advantage over the importations from a distance, that require a time to become habituated to the new impressions that prevail.

The farmer who removes to a distance from his old abode, and places himself under new and very different circumstances, will do well to take lessons from his neighbours, and to get acquainted with the ways and customs of the district. Agriculture is now so generally well known, that each locality has adapted to its use a system of practice that may well be imitated, if not in every point, at least in many performances. A slavish routine or a servile imitation is not here recommended, nor an implicit adoption of the customs of any country; but to exercise a most careful examination of practices and alterations, with a steady use of the former till the latter are seen to have a firm base of introduction. Nothing more clearly betrays a want of practical judgment than the hurrying into action of a series of practices which prevail in the head, and exclude all others, without consideration of the circumstances that will direct and establish the performances. Great losses have been incurred by this inconsiderate course of action, the result of ignorance and conceit. Success under an accustomed course of circumstances is allowed to infer the same effect under totally different circumstances: pride forbids imitation: obstinacy pursues the adopted system of conceit, and stops not till much ruin has been effected. No error is more epidemic among the sons of men than the arrogance which dictates the same course under all circumstances, on the supposition of our own opinion being superior to all others. The highest geniuses in the world have foundered on this mistake: that is very easily seen, and invisible only to wilful blindness. Mostly all practical arts are subjected to variations from time and place; and agriculture is, beyond most arts, exposed to different performances, arising from the varied effects of soil and climate. This recommendation is not by any means intended to forbid any alteration whatever, and to follow a slavish routine: the obstinate conceit and arrogant pride are only warned of the effects of persisting in a course of action, against the reason of observation and the knowledge of experience. Alterations must be cautiously adopted, and gradually and steadily introduced, after time has shown the most despotic of all lessons from the powers of soil and climate.

An advantage is derived by the incoming tenant engaging the services of labourers who have been employed on the farm to which he enters, or in the neighbourhood of similar circumstances. Their general experience is useful; and hints may be taken, though advice is not asked. A local knowledge must be speedily acquired from every source of information, and notices and observations compared. Old opinions must be given up, and new ones substituted, drawn from the circumstances under which the farmer is now placed, in a new locality.

THE SCARCITY OF HANDS AT HARVEST.

With "the strike" still in obstinate continuance, and as much as ever the difficulty of the townspeople, the farmer may surely congratulate himself on having got through his busiest time. It is true this has been at serious cost. Never was the rate of wages so high—simply because the supply of labour was never so short. In no occupation, perhaps, does the one so directly regulate the other. Both master and man know well enough what is coming. There is no need of Associations or resolutions to proclaim this. The employer faced the recent harvest with one other anxiety beyond the customary prayer for fine weather. Only coequal was his hope that he might command the means for making the best of such an opportunity. On the whole, he has accommodated himself more easily to present circumstances than might have been anticipated. We have heard of no great interference to the onward progress of harvest home. At the same time, we repeat, the outlay in this branch of his business has been much heavier than usual. To be sure, we have now for some seasons had stronger and stronger warning of such an advance in prices. We have gradually come to miss the bands of strollers that turned up so opportunely for reaping, and that disappeared again so obligingly when their work was done. The war, or the diggings, had got hold of them, it was said. But the God of battles, alas! keeps many a hostage, and although men do come back from the gold mines, it is not often to work on the farm.

It may, then, be fairly assumed that, for some time at least, the command of agricultural labour will be by no means so easy as it proverbially has been. For the general business of the farm nearly all will take care to be still properly provided, and the great point will be to make the most of what we have. Men no longer are to be had for the asking, or to be whistled on and off just as it may suit our convenience and temporary requirements. Some political economists will argue that this is in reality coming to a better state of things; that the workman so takes his proper position in the social scale, when he has not to ask employment as a favour or a charity. However this may be, the employer must be prepared to deal readily with the case as it now presents itself to him. Nothing sounds more ruinous than crops spoilt for want of harvesting. When once the farmer is put in this dilemma the profit of his occupation is gone. And yet, even in this very season we have been close on such a crisis. Again, we ask, how should we meet it?

The answer is surely self-evident. There was a day when the master actually lingered over his harvest work almost as a duty to his own people and parish—leisurely cutting and carrying this field, and then as leisurely going on to another. There is no question either but that the labourers and their families came to look on this system almost as their "rights"—when the Irishmen were driven out, and the use of machinery denounced. But such an era and such rights are rapidly passing from amongst us. The one great maxim now must be to make the most of what we have—of the seasons, of our produce, and last, but not least, of our workmen themselves. Everything is certainly tending to this. The attention of the upper to the lower classes has of late years vastly improved in its character, while the aspirations of the latter have proportionately risen. There is a far finer feeling being steadily engendered between the two than that of coals and blankets. The allotment system, the encouragement of skilled labour, and the equally public acknowledgment of good conduct, have all tended to the one same great object. The disaffected may go to the diggings, and the lazy lounger into the militia, while the sober industrious servant is sure not only of a fair day's wages for a fair day's work, but almost as certain of the sympathy, the care, and the respect of his employer.

It is with such reliable aid that the farmer may yet concentrate his forces. The straightforward reply to his inquiry as to what he is to do for men, is met at once in this way: If you have less men, you must have more machinery. If you have fewer hands, they must be better skilled. These are palpably the two great points to attend to: the proper education and treatment of the labourer, and the use of really efficient implements. It is here that our Agricultural Associations and their annual meetings become so serviceable. It is for such ends that we uphold premiums and competition, and become guilty of such "absurdities" as offering an *honorarium* of ten guineas to the manufacturer of a useful piece of machinery, or two or three sovereigns to a servant for the best piece of work. It is by this means, by publicly showing what an implement or a man can do, that we introduce improvements into a district, which otherwise might long languish without them. One of the first effects of the extended employment of agricultural mechanism is to raise the intelligence of those with whom it comes in contact. Many a man, ere now, has been educated by steam. But still the lesson is scarcely ever self-taught. Send a *new* invention, however simple in construction or action, to a customer who has never seen it in work, and the chances are that he makes but little of it. His labourers know nothing of it, and he can tell them nothing, and so they break down with it in experiments, or he returns it at once in disgust as useless. The meeting, however, of an agricultural society, will at once supply a lesson so essential, not to one, but to a whole class of pupils. Here master and man may see how the makers themselves turn their wares to the best uses. It is for this that, amongst other reasons, we require continual trials and competition even at minor or "out-of-the-way" gatherings. It is for this that we would have even the great people put to further demonstration as to not only what they have done (*vide* catalogue), but to what they can do. We are sanguine enough to suppose that such a course would be as much to their own advantage as to that of those whose patronage they solicit. Of course we speak with "a bias," and this is for public tests and open competition. Moreover, the less the actual value of an implement is known, the more are these required. Can there be anything so negative or absurd as to have four or five inventions exhibited in a comparatively new country, on the strict understanding that no positive opinion shall be passed upon them; saving, that is, by the exhibitors themselves, every one of whom will be at liberty to assure you that he is "doing by far the best work in the field?"

But to keep to our proper subject. The great want just now has not been a plough or a steam-engine. Our more immediate care has been some means for facilitating the ingathering of the harvest; or, in other words, some agency to supply the deficiency of hand labour. At such a critical period it is really quite pleasant to turn to a firm who appear to be acting thoroughly straightforward. We do not know whether Burgess and Key are members of the Engineers' Society, but we should imagine not; and for this reason—For some seasons they have now been declared to have one of the very best reaping-machines in use. Farmers from all quarters testify to its excellence. And what, then, is their course of proceeding? If they belong to this mystical Society they announce at once that they are satisfied, they can compete no further, they have no faith in general trials, they are bound down not to enter on them, and so forth. Strange as it may sound, Burgess and Key have done nothing of the sort. They commenced the year with confessedly the best reaper out, and they have been competing ever since. They don't wait for the four or five years turn of "the Royal," but wherever there is a meeting, there almost as certainly are they to be found. One week they are in Kent, and the next at Hexham, and the North Northumberland Society. There is no curious edict to consult, no mysterious "gentleman" to advise with; but, confident in the powers of their implement, they have been competing everywhere that competition was admitted, and everywhere with success. This is, be it understood, no awkward puff to serve any especial purpose or person. We are writing, speaking, and feeling strictly for the farmers themselves. They have been in something of a dilemma during this last harvest. Let them look to the public estimates of those agents that have fulfilled their promises to serve them. Let them not be hoodwinked by unintelligible provisos of what should be and what should not. On the contrary, let them trust a little more to what men of their own order—north, south, east, and west—have pronounced to be worth their attention. Let them remember this when harvest comes round again. Let them bear in mind the implements that have courted test and trial throughout the year; and let their first object be to make their labourers thoroughly acquainted with the management of them. We counsel nothing more than the public records of what has been done—and by this, associating good workmen with good machinery, one of the farmer's greatest difficulties will surely be surmounted.

THE YEOMANRY OF ENGLAND, AND THE NATIONAL DEFENCES.

The poet, with more or less truthfulness, has ever pictured the husbandman as flying before the warrior's tramp. He turns in a moment, leaving house and lands, and beeves and flocks, all at the sack of the stranger. His very wife and children in their utter helplessness may have to beg for life and mercy. The arts of peace and war, in a word, cannot flourish together; and the shepherd and the ploughman fall at once prostrate before the hand of the despoiler. At least, so it is that the unequal conflict has generally been said or sung. The poor Arcadians stand all huddled together, like a scared lot of their own sheep, watching without ever influencing the fortunes of the day, and only waiting to see to whose dominion they shall pass over. This is not a flattering reflection to dwell upon, and we have only to trust it is no longer susceptible of any self-application. Still, what would the yeomen of England be able to do for themselves should the invader suddenly appear before them? Have they devised any means of action? Have they any known signal that would bring the strong men of their district in a moment together? Could they show any front, or attempt to stay the attack until some further aid could reach them? Have they made any preparation whatever of this kind? Or would they get huddled together, hiding one under the other, conscious only that they could do nothing to help themselves?

These are awkward questions to put, and, it may be, somewhat humiliating to answer. But they must be pressed home nevertheless. In our many excursions through the country, we scarcely see that systematic consideration of national defence that we could wish. Every now and then, certainly, we meet some smart rifleman hurrying through the street to his evening drill, as occasionally you will find on the mantelpiece or study-table of the Mayor or Town-clerk a War-office communication "on her Majesty's Service." But the movement is not so general as it should be, and the towns so far are more active than the country. Harvest, to be sure, has been just now engaging all the attention of the farmer; but this once well over, and he, too, must look about him. The very name of a yeoman of England at one time carried its weight with it. And we hope still to be able to put him in manly comparison with the pipe-and-crook pastorals that the habits of a country life seemed only to imbue with a feeling of indolence and cowardice.

It is, of course, just possible that such provision may be never actually needed. It may happily happen that the most expert of riflemen will never be called on to take any more anxious aim than that at the face of his target. But surely the knowledge that we should be ready to strike a blow for ourselves is something. On the other hand, there can be nothing more depressing or uncomfortable to think over, than that, should the worst come, we can do nothing to avert it. It is a bold man who can, just at present, dare to read the signs of the times, or at any rate who can make any reliable deduction from what he is permitted to see. The sword may be hanging over us, dependent only by the single hair, and that to be broken by the hot breath of an angry man. Should it fall in amongst us, have none the skill or courage to turn it against the tyrant, who would think to scare us by its very glitter?

But, after all, it may not be the temper of an angry man merely that we have to guard against. It may be, rather, the circumstances of a needy one. The world is the more inclined to regard the matter in this light. It is impossible for some people to exist without excitement, and such a necessity may apply almost equally to a nation as to an individual, to a monarch as to a fine gentleman. We are no alarmists. We should be the last to put the country to a useless expense or our friends to unnecessary trouble. But what we advise would, as we take it, be conducive to neither one nor the other. The very fact, indeed, of anything like a general raising of volunteers would tend to diminish the more direct calls on official provision. At the same time a Rifle Corps might be made quite as pleasant a gathering as that of a cricket club or an archery meeting. There would be the like trial of skill, the same friendly rivalry, only with a more commendable as more honourable object. And, say nothing more comes of it, every one of us will be the better for his drill. Like Lord Winchelsea, when he went to Hythe the other day, we do not know how much we may improve till we try our hand. We care not whether it be in the Militia, the Yeomanry, or the Rifle-band; but let no able man refuse at such a period to learn how to take his own part.

To be sure, we are fast in the blessings of another established Peace—while we hear from Paris that "Government has given orders at Creuzot for the construction of twenty frigates, iron-plated." And, again, "Fifty large steam transports, each capable of containing 3,000 men, will be finished in a short time. Preparations for defence are being made along the whole coast. Besides the casemated batteries of which the *Nouvelliste* of Rouen has recently spoken, the forts on the Mediterranean and the ocean, which have been abandoned for a long time past, are being re-armed. The forts of St. Malo are also taking in new ordnance." Then, the Continent abounds with such rumours as these (it is a correspondent of *The Times* that is speaking): —"You will notice in the *Presse* a Paris letter taken from the *Indépendance Belge*, which is not unworthy of attention, from the fact of its being from the pen of a person who is known to have occasional access to the Emperor's Cabinet at the Tuileries, and is therefore believed to take his views on these subjects from the *genius loci.* According to the writer, or his inspirer, the Emperor's object in making the peace of Villafranca was to gain the alliance of Austria; and his object in the alliance was to accomplish the mission assigned to the second French Empire, namely, the abolition of the treaties of 1815, and the lowering of the moral domination of England!"

There can be but one answer to such gossip as this. We must be "above" it—not by the old conventional indifference to coming danger, but by due regard to our proper position and "moral domination." Although we, as usual, address ourselves more especially to one class, this is a duty by no means confined to them. The initiative, in fact, must proceed from what is called higher quarters. It is to the Lord Lieutenants, county magistrates, and country gentlemen that we must look to encourage the spread of the volunteer movement. They have only to go thoroughly into it, and the feeling will soon become "fashionable." We regard it, in short, as one of the most telling points for an after-dinner address at any of the autumn meetings now on. Let the chairman, or his friend at his right, not merely assure the company what they may do by supporting such associations as these, but let him glance at another kind of association in which they should be all equally interested. It is but the old story of Cincinnatus told the other way; while its moral has thus even a higher rendering.

REMEDY FOR THE BITE OF MAD DOGS.—A Saxon forester, named Gastell, now of the venerable age of 82, unwilling to take to the grave with him a secret of so much importance, has made public in the *Leipsic Journal* the means which he has used for fifty years, and wherewith he affirms he has rescued many human beings and cattle from the fearful death of hydrophobia. Take immediately warm vinegar or tepid water, wash the wound clean therewith, and then dry it; then pour upon the wound a few drops of hydrochloric acid, because mineral acids destroy the poison of the saliva, by which means the latter is neutralized.

SMALL FARMING AND AGRICULTURAL ASSOCIATIONS OF SWITZERLAND.

[TRANSLATED FROM THE FRENCH OF THE "JOURNAL D'AGRICULTURE PRATIQUE."]

Has it not often happened to you that when you allege, as an example, the agricultural progress of England, that you receive the following desponding reply:—"All that is easy enough to the English—they have still large properties; but we, with our soil reduced to infinitely small ones, how can we do the same?" In order to encourage these honest people, advise them to read a very small, but very good book, namely, "*The Systems of Cultivation*, by M. Hippolyte Passy." Perhaps they will then be able to see, or at least will be in a way to learn from other countries which have adopted our French laws relative to the transmission of real property. They will see, alas! unfortunate persons there; but they will also find in them those who have no reason to envy England in regard to agricultural production, and sufficient to prove that that production is not the consequence of the laws which regulate property; and we maintain the hope that we shall arrive at the same in France, without repealing, in the name of the public good, the arrangements introduced, by the legislators of 1789, into our code, in the name of Justice. The public good, well studied and well understood, will always be in accord with justice.

Some of the Swiss cantons may serve us for studies in this respect. But before speaking of them, let us establish the foundation of the question.

In England the father is at liberty to divide his landed property as he will; but if he dies without making a will, the law awards it to the eldest son. As to the moveable or personal property, it is shared equally amongst all the children. Besides, every proprietor has the right of entailing his estate, and thus making it indivisible for ever.

In France we make no distinction, as to their transmission by inheritance, between real and personal property. The parents cannot favour one of their children to the injury of the others, beyond a certain limit, and, in the event of their dying without a will, the effects are equally divided amongst all the children: the law imposes equality. The cantons of French-Switzerland and some of those of German-Switzerland have imitated these articles of the French civil code.

Thus, in England the division of the property is fettered; in France it is promoted.

Large property does not necessarily imply large farming [Ireland, for instance], but it allows it; whilst small property hinders it. The characteristics of large farming have a tendency to increase the price of hand-labour, and consequently to favour the employment of machinery, and at the same time a more economical employment of machinery: up to a certain point, the division of labour, &c.

Such are the advantages that English agriculture owes to its large farming, and nothing else. Its prosperity arises, above all, from the application of large capital to improvement and cultivation. But why do not the small proprietors procure and employ similar capital? Good laws, like that we have in France, for irrigation and drainage, allow the performance of these works in a country of small farming. Small proprietors may, as well as large, procure for themselves by economy, or on credit, the capital necessary for their execution. If our peasants have a passion for purchasing land at ruinous prices, and for injuring trade by the blind competition they raise in those purchases, that belongs to a want of intelligence and not to the number of hectares they possess. For the working capital we may say the same; and, if we estimate in money the amount of hand-labour in Flanders expended upon the small holdings, we shall find it larger than on any of the fabulous farms in England.

And, as to the entanglement *(enchevêtrement)* of the lands, MM. Villeroy and Muller have given us an example of the means employed in Bavaria to remedy it.

Already Mathieu de Dombasle had spoken of an analogous union of parcels in the two adjoining communes of Roville. The part of France where the subdivision *(morcellement)* appears to have produced the most disastrous consequences is the north-east; above all, Alsace and German-Lorraine. Many of the cultivators there are ruined; and as these are small proprietors, it is concluded that it is the smallness of their properties that is the cause of their ruin. Nothing is more false: they possess, on the contrary, too much land relative to the means they have of cultivating it. They purchase at insane prices, often on credit, and pay enormous interest for what they still owe. It is not surprising that, giving 8 and 10 per cent. per annum for the capital representing land which, purchased for 15,000 francs and sometimes 20,000 francs per hectare (or from £253 to £337 per English acre), returns them only 1 per cent., they make a bad affair of it. They show a want of intelligence; but I do not think that intelligence diminishes with the diminution of property. The editors of the *Univers* have not yet proved that. The true cause of the miseries which coincide with an extreme division of land, but which are by no means the consequences, is this: *the education which developes intelligence has not made in France a progress so rapid as the increase of the number of proprietors.* Is it necessary, in order to re-establish harmony, to stop the subdivision, or to hasten the extension of primary instruction? Let good sense decide. The example of the Swiss, with whom small farming is general, shows that the cultivator prospers everywhere, when he is educated.

However, let us admit that the soil is subdivided beyond desirable limits. By that very reason that its culture becomes then too expensive, there will be a tendency to the reunion of parcels; for the small cultivator will find it profitable to sell his land to a neighbour richer than himself, and to become a farmer or a workman. The final end of our civilization, in an agricultural point of view, ought to be to support upon a given surface, of a given fertility, the greatest possible number of persons. This amount of population has its limits, varying with the times and the progress of the arts. When the redundancy arrives, it should have an overflow; an emigration should take place towards countries where the forces of Nature, inactive, claim the hands useless elsewhere. It is necessary for the hives to send out their swarms. Algeria, the *landes* and the marshes of the centre of France await the swarms of the north. But there are means of throwing back this limit, and these are what we now wish to consider.

Switzerland has shown us that one of these means consists in *the union of agriculture and manufacturing industry*.

Whilst the small proprietors occupy the winter and the cessation of labour in the weaving of linen and cotton fabrics, as in the cantons of Salzall, Appenzell, and Zurich; in that of silks, as in the neighbourhood of Basle; in the manufacture of clockwork, as in the Jura; these divers industries find in them workmen at prices moderate enough to enable them to compete, without any protection, against the English competition. Besides, the workmen, stimulated to economize by the desire of improving or increasing their small domains, acquire habits of order unknown in our large city manufactories, where they live from day to day, expending on the morrow what they have gained the previous evening, and threatening the property of others, because they have none of their own to defend. In France the protection granted to our manufactures has not only led astray the hands, but the work-shops of the country where they might have found, in the waters, economic motive-power.

In the Emmenthal, one of the richest and most fertile valleys of the canton of Berne, and in some other cantons, the fathers of families seek, as much as it is possible for them, to accumulate enough personal property to enable them to transmit their landed property intact to the youngest of their sons, leaving the shares of the others in money. In numerous families it rarely happens that they are able to make such an equivalent division in capital. In the meanwhile, the land is given to the youngest, on the condition of paying to the others an annual rent equal to the interest of the capital which ought to accrue to them. Some communes in Alsace, amongst others the prosperous villages of Kochersberg, near Strasburg, have adopted the same custom, and display the exercise of a prudent foresight, little emanating from our own laws.

In the localities in which the division is made in kind, the Swiss do not insist on a separation of each parcel in a number of pieces equal to that of the children. Suppose there are four children and eight pieces, some arable land, others meadow, vineyards, &c.: they know that by dividing each of those eight pieces into four equal parts, they would not be merely each four times less rich than their father, but five or six times less rich; and they therefore arrange amongst themselves to make the shares equal in value with as little division as possible. This shows that a healthy intelligence of their interests has taken place of the jealousy which divides to infinity the territory of many of the French communes. The justices of the peace who preside over our family councils ought to use their influence to make more rational ideas prevail.

You have all heard speak of the famous reforms of the Duke of Sutherland in the mountains of Scotland. He had on his vast domains a crowd of small tenants who were living in nearly the same miserable state as the inhabitants of certain French villages, poor, and ignorant of all means of bettering their condition; but also of a better condition, and therefore contented with their lot, like true Britons. What would you say if our Government, instead of giving to our Bretons schools, roads, canals, railways for the importation of the means of culture, and the ideas of progress, and the exportation of produce, forced them to emigrate to Algeria? Well, this is what the Duke of Sutherland has done* on his property, which is almost a kingdom. Thinking that large farming would be more profitable than the small, and that it would be more advantageous to have many sheep than many men upon it, he has, what the English call, brutally *cleared* the country; he has driven away the peasantry, and created some immense farms, which feed sheep, in winter with turnips cultivated in one or two valleys, and in summer with pasturage on the mountains. But now, since good highroads have placed the highlands in easy communication with the great central consumers, the experiment has shown that these soils, reputed sterile, can, for the most part, support the five-shift course of husbandry, (turnips, oats, two years trefoil and ray-grass, and oats); and this is precisely the division in pieces let gratis for a certain number of years, then at a price gradually advancing to peasants whose arms are nearly their only capital, who are taught the most ready means of clearing it. But the population is too thinly scattered for the improvements to proceed fast enough for the old inhabitants to find themselves still on the property. On the other hand, the large farms have great difficulty in finding farmers rich enough to work them. I do not speak of the English army, deprived of those its best recruits, nor of the manufacturing establishments which, seeing the sources dried up from whence they drew their hand-labour, suffer from the progressive rise of wages; and see the moment approach, in which, thanks to the abundance of their operatives, their rivals on the continent will struggle against them with arms more and more powerful.

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* The writer of this paper must have been either grossly ignorant of the facts relating to the affair on which he was writing, or he has wilfully maligned the Duke of Sutherland, and imputed to him charges as false as it is possible to be. Fortunately, all Frenchmen do not write in the same bitter spirit of England and Englishmen. M. L. de Lavergne, in his admirable work on the Agriculture of England, Scotland, and Ireland, has given a full account of the Duke of Sutherland's reforms, and has with a manly candour done the noble Duke (*noble* in every sense of the word) that justice which his benevolence and that of his excellent Duchess deserve; and M. Eugene Rister would do well to read that work, and make himself acquainted with the subject, before he dared publicly to malign a noble character for the sake of elevating the policy of his own everchanging Government.—*The Translator.*

I have cited this example because it shows the consequences of the indivisibility of property pushed to their last extreme, and in order to oppose to the Scotch the example of the Swiss, whose country resembles theirs in agricultural conditions, and in which it is easy to see *that small farming is better adapted to the cultivation of mountainous countries than large.* In fact, the difficulty of that cultivation consists in obtaining winter food enough for the animals (horned cattle in Switzerland and sheep in Scotland) which pass the fine season upon the high pasturage. Now, for that purpose it is necessary to avail themselves of a number of small valleys, and even all the nooks, where a more moderate rising ground, and the natural decomposition, have allowed the accumulation of arable soil. There must therefore exist a great number of centres of cultivation. Our French Vosges owe also their admirable irrigations to small proprietors.

But admitting that the soil be subdivided, it remains to examine the application of a fruitful principle which can correct its abuses, as the employment of machinery has been introduced in manufacturing industry to neutralize the fatal consequences of the division of labour without depriving us of its benefits, as associations by shares have discovered the way to concentrate in their employ the personal fortunes, at the same time leaving to the great number the privilege of their enjoyment. It is association in various forms that can invest, and not the association which threatens liberty under the pretext of protecting the rights of labour against capital, and that divides two elements of prosperity which it ought to unite; but the free and voluntary association which extends the advantages and diminishes the expenses of production, as elsewhere it makes the strength by union.

It is in the Canton de Vaud that an institution has originated, that we have had the happiness to see introduced into Franche Comte—that of the *Fruitières.* It is to be wished that it may be extended to other regions of France. It is a subject to which might be applied the beneficial influence of agricultural committees.

When the consumption and consequently the price of milk and fodder became increased in the city of Geneva, the Fruitière Association of a neighbouring village started the idea of applying the same principle to the sale of pure milk instead of making cheese, which only paid for the milk at 15 centimes the pot (1 1-7 litre, or not quite 2 pints), the associated farmers bring it to a dairy, where they charge it at 22 centimes. The association, which in the Fruitière diminished the expense of manufacture, not only reduces the expense of sale of the milk, but it also increases the facility of the sale.

We have said that the chief disadvantage of small farming consists in the impossibility of its employing machinery with the same economy as on the large farms. It is true, that the profit we can derive from a machine depends much on the price of hand-labour. Whilst the farmers of La Beauce may have Flemish harvestmen in abundance, they will not purchase reaping machines. The English have begun to employ mechanical means of cutting their cereals, only from the moment at which the Irish workmen have failed them. Now, it is the small farming, which retaining in Flanders and Ireland a numerous population, and preventing it from emigrating, rendered hand-labour approachable. Thus the country of small farming, or the neighbouring countries of one of small farms, have, in order to produce wheat at the same price as tl ers, less need of machines than those. But they have not less need of some of these amongst them, and this will increase more and more in proportion as the price of land and mechanical improvements make progress. A peasant, the owner of a few hectares of land, is unable to purchase a threshing machine, unless he threshes for his neighbours; and this frequently takes place. Special machinists may also undertake the work, and let their machine with or without the motive power. These means are excellent, and apply to different kinds of instruments. It is simply what takes place every day in countries of small properties, with various operations.

He who has had capital enough to purchase these means of economic cultivation, lets them; and the more he does so, the more he derives from his capital. But for more costly machines, such as threshing machines, drilling machines, &c., these large capitalists may be wanting, and at all events their aid at a given moment depends on their good will, and not on a positive arrangement. This reason has decided a certain number of the farmers of the Commune of Meyrin in the Canton of Geneva to form a *company with shares of* 25 *francs each, for the purchase and use of machines and implements of husbandry.*

With their first funds they have purchased a portable threshing machine, with its winnowing machine, a drilling machine, for the wheat, by Chevalier, &c.; they have set the price of its renting at 25 per cent. per annum, or its equivalent per day or half-day of the value of the instrument.

In some places the forge is communal. The buildings, and even the implements belong to the commune, who adjudge the use of it to a blacksmith, on condition that he works at a given price.

At other times the wine presses are common; and more than that, there are in some of the vine districts societies for the improvement of the culture of the vine, which cause the works to be inspected by common surveyors. This is very useful for proprietors who have not the time or the knowledge necessary for this inspection, and who have the work done and the harvest gathered by vinedressers, at so much per hectare, say from 220 f. to 250 fr. per hectare, and 6 f. more per char of wine of 6½ hectolitres. The Vaudois cultivators, associated for the conversion into cheese of the produce of their cattle, have naturally formed the idea of a society of mutual assurance against the mortality among cattle. These societies are communal, and a great number of them are in existence. Certain of them insure only horned cattle; others comprehend horses. The indemnity granted in case of a loss amounts to from two-thirds to three-fourths of their value for cattle, and half for horses. The valuation of the animals takes place immediately after the purchase, and afterwards twice a year. As in the societies for mutual assurance against fire that exist in France, the members pay an entrance fee, destined to defray the expense of administration, and at the end of each year the amount of the indemnities granted is shared amongst them, according to the value they have insured.

The insurance against fire is equally mutual in the Cantons de Vaud and at Geneva; it is managed by the State, and is compulsory. All the proprietors are satisfied with this organization. In what precedes, the association is applied to the reduction of the expenses and the chances of production. It may have also for its object to reduce the chances of sale.

In order to escape the occasionally omnipotent influence of the butchers, the Genevese cultivators have become butchers themselves, with a capital of 4,000f. to begin with, to be increased to 8,000f.; they have established a society by shares of 20f. each, called the Stall of the Agriculturist, which kills the beasts, and pays the owners for the meat at fixed prices, deducting the expense of slaughtering, and sale at the price current on the market of Geneva. Thus all intermediate parasites between the producer and the consumer are superseded, and real services are only paid. The farmer who sends a beast to the stall, enters it upon a register *ad hoc*, pointing out the principal exterior marks of the animal, so that it may be identified, and indicating approximately the condition in which it will be presumed to be found at the time of killing, the fat, good meat, middling, &c. For the security of the register, he pays to the depôt the sum of 15f., which go to the Society in case the beast is not sent. Recent cases of disease or accident, which in no respect alter the quality of the meat, do not exclude the animal from admission. The beasts are slaughtered in order of entry. In case of accident, the owner can compel them to kill it immediately, if the cantonal veterinary surgeon declares that a prompt slaughterage is necessary, and that the quality of the meat is not affected. One of the employés of the stall is charged with informing the owner by letter, two days before the slaughtering, pointing out the hour for its arrival. The owner ought to conform to this order on pain of losing the deposit for the entry. When the meat is cut up (which takes place at the municipal abattoir) it is submitted to the inspection of the jury of butchers, in presence of the owner, and a person appointed for the purpose, by the committee of administration of the Society. It is classed according to its quality, as 1st, 2nd, 3rd, 4th, and 5th. The prices which the Society pays for those different qualities of meat are fixed every month by the committee of administration, as well as those of the hides, tallow, and all other offals. The owner is paid, according to these prices, as soon as the meat is carried from the abattoir to the stall, deducting from it only 2 per cent. of the weight of the fore quarters, for the difference between meat warm and cold. The committee of administration fixes, in the same manner, the price at which each quality of meat should be sold in retail. For calves, there is a system of subscription. On subscribing, the farmer declares the number of cows he possesses, and the approximate number of calves he expects to supply to the stall during the period of his subscription. In the eight days that follow each birth, he gives notice to the administration, which demands the calf when it thinks proper. When the subscriber sells a calf to another butcher, he pays 15f. forfeit, a guarantee of the exactness with which they fulfil their engagements. The subscribers, non-shareholders, deposit 15f. on contracting their subscription. This is the only difference that is made between the Associated Farmers and those who do not belong to the Society. Instead of dividing the profits, they have employed them in purchasing new machines. At present their capital has doubled, and each share is worth 50 f. When they shall have no new acquisitions to make, they will divide the profits annually. The following are the rules of the Association, which thus may serve as a foundation for similar institutions:—

Art. 1. The implements shall be granted for use, in preference, to the shareholders; then to the inhabitants of the communes; then, lastly, to strangers. They shall be returned according to the order of application.

Art. 2. The member or hirer shall not hire the implement for more than one day if it is required for another shareholder. The thresher alone can let himself for several days.

Art. 3. Persons who use the implements are answerable for accidents known to be caused by their own neglect. Payment is made in ready money. They are taken and returned at the hirer's expense.

Art. 4. For each tool a register is kept, which serves as the basis for application.

Art. 5. In case of an implement being deranged, the registry shall follow immediately after the repairs are made.

Art. 6. The hirer of the wheat threshing machine is bound to take it at his own expense, and to return it the evening of the day his registry is finished. It is the same with the winnower, which accompanies the threshing machine.

Art. 7. The wheat thresher does not go out without its attendant, who shall be fed at the expense of the hirer, and pay him according to a scale fixed by the Society.

The scale of hiring, for instance, is for the drill 3 f. per day, and 1½f. per half-a-day; for the wheat thresher and its manager 7 f. per day in summer, of 10 hours; 4 f. per half day, of 5 hours; 5 f. per day in winter, of 8 hours; 3½ f. per half day, of 4 hours.

In the Commune of Grand Sacconix, a wealthy man, who wished to encourage the employment of improved machinery, (M. Giroud Perin), formed at his own expense a depôt of these implements, which he let out at from 2 to 3 per cent. of their cost price, enough to give the hirers an interest in returning them as soon as they have finished working them; this depôt consists of a subsoil plough by Read; a wheat drill, by Chevalier; a hand-barrow drill for colza, an excellent roll, Valcourt harrow, &c. The same M. Girond has advanced to the Commune a sum of 1,400 f., to establish a fixed thrashing machine. The Municipal Council regulates the working of this machine.

To how many subjects might we apply this organization in small shares of from 25 f. to 50 f.? Why do not the beet-root distillers thus combine like the fruitièles, for the making of cheese?

The vineyards, which produce the wines, employed in the manufacture of Champaign, have no enormous profits, which are given to the great houses of Epernay, Rheims, and Chalons. Why should they not have their tuns, their cellar, and their business?

The small farming is reproached with being incompatible with the rearing of sheep. This is not strictly true, for in le Berres and le Poitou, it is the small bordagers who rear the most sheep. They also might apply to the sheep the system of communal shepherds, which exists in many of the villages of the east of France for horned cattle. This is what took place in the Canton de Vaud. The sheep are in the stables of their respective proprietors only during the bad season. The rest of the year they are under the care of a common shepherd. They pasture and lodge together, when they are not penned, thus passing the night in a common sheepfold. Commonly, the number of sheep that a proprietor may intrust to this shepherd is in proportion to the extent of the land which he gives up to the sheepwalk. The communal pastures are at the disposition of the flock, gratuitously, or at a very low price. The milk, the flesh, and the wool of the sheep, return to the master; the foldage and the dung are sold at so much per day or per week. From this revenue they deduct the expence of hiring and keeping up the sheepfold, the salary of the shepherd, the medicaments, the fee to the surgeon; the balance of this amount is divided amongst the shareholders. These associations tend to disappear with the communal pasturages, and with the fallow. In the mean time we should observe that it is not the small farming, but conditions of production independent of the state of the property, which regulates by degrees the rearing of sheep in the country of extensive culture and large farms.

In many Vandois Communes there is a *common oven* and a public baker, who supplies the wood and bakes the bread, charging so much per cent. of dough.

As the farms of the Canton of Geneva do not fatten sheep, and as the State proposes to supply its connection with all kinds of meat, it has created a reserve fund, by means of which it purchases sheep from Savoy and the south of Germany.

Let us add to this example that of the alimentary societies of Grenoble, which the gererality amongst you (the French) ought to know; and you will know how the consumers on one part, and the producers on the other, can be brought together by association, and suppress the miller, the baker, the butcher, the merchant, when these attempt to add unlawful profits to the just remuneration for the services they render to society. When the intermediaries league against you, you must combine against them.

EUGENE RISTER.

THE TRADE IN NITRATE OF SODA.

The large importations and increasing use of nitrate of soda as a fertilizer necessarily give the subject of the trade statistics an importance in the eyes of the agriculturist. And by the favour of Mr. Bollaert, F.R.G.S., who has prepared a paper for the approaching meeting of the British Association at Aberdeen, we are enabled to furnish some valuable details, showing the progress of the trade in this important staple of Peru from the commencement of the export to the present time. Mr. Bollaert is a gentleman of great local knowledge, who has personally examined the whole of the districts yielding the important salts of commerce. His paper is entitled "Second Series of Observations on the Geography of Southern Peru, and on the Salt, Nitrate of Soda, and Borax deposits in the province of Tarapaca." The first observations were read before the Royal Geographical Society, in April, 1851, and are published in the Society's Journal, and have been greatly referred to by scientific men and geographers.

The salitre is found between the 19th and 22nd degrees of S. latitude, in an arid table land, with salt and borate of lime, about eight or ten leagues from the coast. Deposits of salitre are also found in the Pampa del Tamagrual at an elevation of about 3,300 feet above the level of the Pacific. These beds, which are inexhaustible, extend to within six leagues of the coast.

The Peruvians designate the salitre mixed with sand and clay by the name of "caliche." The white crystallized caliche is nearly a pure salt; and at certain times it is so hard and compact that it is necessary to use powder in working it. The caliche is deposited in beds of from six to ten feet in thickness, and of varying extent.

To separate the salitre it is heated with boiling water; the solution is evaporated by fire, and when the salt is dry it is carried to the port of Iquique, whence it is shipped to Europe and the United States. There are generally about a dozen vessels loading in this port. The town is attractive from the vast amount of business going on. There are five principal varieties of nitrate;

one in particular called "azufrado," containing iodine and chrome.

The rough nitrate is broken into small pieces, put into boilers, water introduced, and the whole boiled; the nitrate is held in solution, whilst the earthy matters, salt, sulphates, &c., are separated, and fall to the bottom of the vessel: the saturated solution of nitrate is let into a resorvoir, where it deposits any remaining earthy matter; the clear liquor is run into shallow troughs, exposed to the sun; crystallization takes place, containing only 2 to 3 per cent. of impurities, and is ready to be conveyed to the coast for exportation.

The following return brings down the total yearly exports from Peru from the date of the first commencement of the trade to the present time. From this it will be seen how rapidly it has increased, now reaching to about 6,000 tons per annum. The total shipments from the commencement have amounted to about 600,000 tons. And the return, which is brought down to June of the present year, shows that a considerable impetus has been given to the trade in the past three years, the annual shipments having nearly doubled since 1856.

Nitrate of Soda exported from Iquique, and other Shipping Places (Caletas), from 1830, to 30th June, 1859.

Years.	No. of Ships.	Quintals.	Years.	No. of Ships.	Quintals.
1830..	4	18,700	1846..	66	390,148
1831..	12	40,385	1847..	60	383,097
1832..	15	52,500	1848..	73	485,089
1833..	26	92,700	1849..	69	430,102
1834..	36	147,800	1850..	81	511,845
1835..	39	140,399	1851..	89	599,406
1836..	45	158,534	1852..	95	562,989
1837..	38	165,369	1853..	124	866,241
1838..	31	129,610	1854..	101	720,465
1839..	36	149,576	1855..	121	936,888
1840..	45	227,362	1856..	98	811,603
1841..	52	278,488	1857..	123	1,095,833
1842..	65	359,918	1858..	124	1,220,240
1843..	67	369,317	1859..	70	796,288
1844..	74	380,191			
1845..	70	376,239		1,949	12,897,322

In our Board of Trade returns nitrate of soda is still entered under its old name of Cubic nitre. Our direct imports of nitrate of soda from Peru in the last five years have been as follows:—

	QUANTITY. Cwts.	COMPUTED NETT VALUE.
1853	282,651	
1854	367,616	£317,069
1855	299,374	246,984
1856	259,720	220,762
1857	293,517	295,245

Hence it will be seen that at present we take only one-third of the total imports. A large quantity goes to the United States, and some to European ports, Mauritius, &c.

Considerable fluctuations have taken place in the selling price of nitrate of soda in London, as will be seen from the following range of quotations at the close of each year named·

	£	s.		£	s.	
1851	14	10	to	15	0	per ton.
1852	15	0				,,
1853	18	0	to	18	10	,,
1854	17	10	to	18	0	,,
1855	18	10	to	19	0	,,
1856	17	10	to	18	0	,,
1857	22	0	to	23	0	,,
1858	16	0	to	18	0	,,
1859	16	0	to	17	0	,,

The moderate price at which it is now obtainable will doubtless cause its extended use in agriculture.

At the shipping port, the current wholesale value at the latest accounts was 21 rials = 10s. 6d. per quintal of 100 lbs.; so that, adding freight charges and profits, the present current price is by no means disproportionate. We need not go into details here as to the fertilizing value of nitrate of soda. The experimental researches of scientific chemists and practical farmers have already determined this point, and its special advantages in certain cases are well understood. Those who have not used it have ample data for reference in the "Journal of the Royal Agricultural Society," the "Transactions of the Highland Society," and the "Farmers' Magazine."

The inferior nitrate of soda is so like coarse-ground, dirty, common salt (chloride of soda) that it may be, and is often, mixed with it. It is, therefore, of consequence to the cultivator to be able to distinguish what is good and pure from that which is adulterated or originally impure. The price of common salt is far below the price of nitrate of soda; and if it answers for manure, the purchaser need not throw away his money upon a mixture containing perhaps one-fourth of common salt, or more. Fortunately there is a very simple mode of testing the nitrate—not a regular analysis requiring chemical knowledge, but one that must prove the presence of common salt at once; and that is, to throw a small quantity of the nitre into the fire, and if it contains salt it will produce a crackling noise; if it is pure, it will burn very rapidly with a sort of hissing noise, and no crackling at all. Every one knows the noise produced by throwing common salt on a fire, and if the nitre be pure no such noise should be heard; and in proportion to the quantity of common salt so will the noise be greater or less.

Nitrate of soda is applied to many of the purposes for which nitrate of potash is used. It is not adapted for the manufacture of gunpowder, if impure, but we are informed that when perfectly pure it appears red to deliquesce. It may be employed in fireworks, and used as a substitute for nitre (it being cheaper) in the manufacture of nitric acid, of sulphuric acid, and other cases in which large quantities of nitre are consumed.

The common nitre is used in the manufacture of sulphuric acid. The residue consists of sulphate of potash; for which there is a considerable demand in the alum works in the north of England. The residue from nitrate of soda, which is sulphate of soda or salt-cake, is inferior in value to sulphate of potash, but meets with a purchaser in the soda manufacturer.

PECULIARITIES OF THE TRADE OF THE MISSISSIPPI AND ST. LAWRENCE WATERCOURSE.

Western trade stands in much the same relation to the eastern markets of the United States as does the Dutch and Russian trade to the trade of Hull and London. Chicago is so distant from New York, that a cargo of wheat shipped from it to New York can scarcely be expected to arrive inside of thirty days; and from November till May severe weather cuts off the transportation of every kind of cereal product. The European winter is not of so long continuance, and perhaps less time than thirty days suffice to bring cargoes to the Thames from Dantzic or the Elbe. The markets of the Elbe and Dantzic are, therefore, if anything, more accessible to the English trade than are the markets of the Western States to the Atlantic seaboard.

Nor can railroads, nor the Victoria Bridge at Montreal, remedy that western isolation. Cereal products are of great bulk and weight, in proportion to their value, as compared with many other articles of merchandize; and that great bulk and weight, together with the low money value, leave an insufficient margin for railroad transit. Sixty pounds weight of wheat is almost as bulky as sixty pounds weight of tea; and while sixty pounds weight of tea carried from Chicago to New York would not be perceptibly enhanced in value by a transit charge of two shillings sterling, sixty pounds weight of wheat so carried from Chicago to New York at a like charge would be unmerchantable in consequence of its excessive cost. Chicago wheat carried by railroad to New York could not be sold on the same terms as Chicago wheat carried to New York by water; and as a consequence western railroads are entirely useless for the transportation of low-priced products, unless the distance is very short. Taking this well-ascertained fact in connection with the rigorous climate of the Western States, there is no hope of ever moving western crops during winter to the Atlantic seaboard, no matter how urgently these crops may be required in Europe. What the Victoria Bridge at Montreal will secure will be an uninterrupted passage of the St. Lawrence River; but the passage was never interrupted more than a single week throughout the year, when the river ice was either setting or breaking up.

If then at any time it were desirable to supply the English market with western wheat and corn when the western rivers and canals were frozen, some other outlet must be looked for than that by New York and Montreal. That other outlet is to be found in the Mississippi river. That river, as high up as Cairo, some twelve hundred miles above New Orleans, is open throughout the winter; and Cairo connects by railroad with all the great wheat and corn-growing districts of the Mississippi, the Missouri, and the Illinois. Nor is Cairo so distant from these growing districts that the cost of railroad transit absorbs an undue proportion of the market price of cereal products, and leaves an inadequate return to the western farmer. It is quite otherwise. The western farmer can at all times afford to send his crop to Cairo, as well as to Chicago; and in sending it to the former the supply of western grain would be maintained in Europe throughout that period of the year during which at present not a single bushel is supplied. This is an important consideration to the English grain trade. With the Mississippi open to Cairo, and with railroads stretching from Cairo into all the growing districts, the entire western crop could with the greatest ease be diverted past New York and Montreal into English ports, long before the Erie Canal and St. Lawrence River had been released from ice.

In point of fact, the Mississippi River presents the best outlet at all times to western trade. To a great extent, in summer an unbroken watercourse would be secured to western crops by the Mississippi to New Orleans, at a full saving of twenty-five per cent. to the farmer, both in market price and in time saved. Not more than ten days would be consumed in transportation from the Upper Mississippi to the Gulf of Mexico; while not fewer than forty days are now consumed in transportation from the Upper Mississippi to New York and Montreal; and while fourpence a bushel would carry wheat from the Upper Mississippi to the Gulf of Mexico, not less than four times that amount is required to perform the present service by way of Chicago and the lakes.

Yet hitherto these great natural advantages of the Mississippi have been unperceived; and gigantic efforts are still being made to carry western produce through the Eastern States. It is proposed to cut a canal across the state of Michigan, from Lake Michigan to Lake Erie; and to cut a canal from the Georgian Bay into Lake Ontario. It is proposed also to enlarge the Erie Canal sufficiently that ships of eight hundred tons burthen may carry freight from Chicago to New York, and *vice versa.* A similar project has long been in agitation in Lower Canada, whereby Lake Champlain might be made available for carrying cargoes from Chicago by the St. Lawrence River to New York; and the Victoria Bridge at Montreal has the same diversion of western trade in view. People seem to think it quite unnecessary to look around them to see what the conformation of the American continent really is; and it might fairly be inferred that there was no Mississippi River. This is a great mistake. It is quite conceivable that the advantages of the Mississippi River may be successfully ignored for years to come, but nothing is more certain than that ultimately its cheap open water transit will draw towards it the great bulk of the cereal products of the Western States, and that it will become the great ocean highway of the other hemisphere.

One of the great obstacles to the development of western trade by the Mississippi River has been the obstructive policy of the people of St. Louis, than whom none would profit more were western trade transferred wholly from the St. Lawrence and the New York canals. The St. Louis Board of Trade have long maintained high standard grades of wheat and flour, and practically shut out inferior kinds. The object of the restriction was to induce a more improved system of cultivation than that usually followed on new prairie lands; and although it has completely failed in that object, still it is adhered to, to the great prejudice of St. Louis and the Mississippi. But for that restriction, it is really questionable whether Chicago would have been anything more to-day than the mere outpost that it was ten or fifteen years ago. This much, however, is certain, that the great bulk of the produce now drawn by Chicago from the Upper Mississippi would have found its way direct to New Orleans, and the navigation of the Mississippi and Ohio rivers would then have received much of the attention and a large proportion of the outlays bestowed on the New York canals and the canals of Canada. The effect of the restriction, in the face of a rapid filling up of the Western States, was to turn inferior wheat and corn and flour away from St. Louis and the Mississippi: and Chicago presented the next best market. Accordingly the Chicago market was supplied with the inferior first crops of the new western farmers, and means were taken for the movement of these to New York. When the crops of the new western farmers improved, these improved crops were not sent to St. Louis, but to Chicago; and the western trade was thus wrested from its proper channel.

Another practical obstacle to the development of western trade by the Mississippi is chargeable to St. Louis. While in Chicago every possible inducement was offered to the movement of produce, nothing whatever was offered in St. Louis. In Chicago enormous warehouses were constructed with enormous bins, into which cereals could be securely stored; and by an application of the common bucket-pump principle, grain was unloaded from canal and river boats with great economy and expedition, and when wanted to be shipped to New York was elevated from the bins and run in great continuous streams down the ship's hatchway. Here is a description of two of these grain warehouses built on the Chicago terminus of the Illinois Central Railroad:

"The buildings are 103 feet by 204 feet, and 120 feet high. In the operation of the machinery, the grain is elevated 128 feet. The cost of the buildings will be about 200,000 dollars each (£80,000). The machinery for handling the grain is worked by four steam-engines in each building; and every part of it is perfect in every particular. The brick walls are bound together by massive bolts, only a few feet apart; and, to give some idea of the quantity of timber used, 29 ship-loads were put into one building. Two hundred and thirty-six carloads of grain were unloaded by one of the houses in a single day—between 80 and 90 thousand bushels."

The aggregate elevating storage provided by Chicago is over 4,000,000 bushels; and the aggregate capacity to ship each day is 1,340,000 bushels.*

While Chicago has provided these facilities, St. Louis has done nothing in the same direction; and steamboats loading grain at St. Louis lie alongside the quay, and have the grain backed on board in two-bushel bags. This is a slow process in a fast country, and conducted at ten times greater cost, and with ten times more delay, than the process in Chicago. In Chicago, a vessel carrying 20,000 bushels of wheat is filled up in two or three hours; and the shipping of a like quantity at St. Louis would not unfrequently occupy a week. Then another great advantage of Chicago elevating is, that the grain of one bin may be turned into another bin as often as may be wished, and for the merest trifle; while grain-turning, in St. Louis, is accomplished by manual labour, as in England.

This almost culpable apathy on the part of the St. Louis people, is scarcely accounted for by pertinacious adherence to high grades of grain and flour, but is in a great measure owing to the produce trade not occupying, in St. Louis, the supreme position usually assigned to it. The people of St. Louis are largely interested in manufactures; and the bulk of their floating capital is, therefore, withdrawn from the produce trade. But for that circumstance, it is just as likely that St. Louis would have given as many facilities as Chicago, and that the back loading of grain would have been discontinued years ago.

Such a feeling in St. Louis, on the subject of the produce trade, does not give promise of an energetic and speedy movement in behalf of the Mississippi outlet. On the contrary, it clearly indicates that, so far as St. Louis is concerned, the present *statu quo* will be maintained, and Chicago suffered to drain the growing-districts of the Upper Mississippi. Nor can any movement be expected to originate in New York. The interests of New York and the Atlantic seaboard are inseparably bound up in the course of the Western produce trade continuing as it is. With the Western produce trade diverted into the Mississippi, New York and Boston would draw their supplies from New Orleans, the numerous benefits accruing from the inland carrying trade would cease, and the carrying interests be destroyed. If a movement is to be made at all, it must be made in Europe. Attention must be given to receipts at New Orleans, which are second only to the receipts at New York; and orders to any extent, for Illinois and Wisconsin wheat, can be filled there, with a little effort, whether sent in summer or in winter. Or parties interested in the produce trade may establish themselves on the Mississippi at Cairo or St. Louis, and operate with their friends in Mark Lane or Liverpool. Never was there a better opening. In the winter, when the demand from Chicago and the East has wholly ceased, and the farmer has no inducement to send his stuff, on speculation, to be stored in the Chicago elevators, grain and flour can be bought anywhere throughout the West with a wide margin on current rates in England; and, as already stated, every facility exists for its cheap and rapid movement to New Orleans. That course is infinitely to be preferred to the other; and its risk would not necessarily be spread over a greater period. It is alike deserving of the attention of the English grain trade and of the English capitalist; and, even in a period of low prices, like the present, it

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* The following is a memorandum of the number and capacity of the Chicago elevating storage:

CAPACITY FOR HANDLING AND STORING GRAIN.

Elevating Warehouses.	Capacity for Storage. Bush.	Capacity to receive and ship per Day. Bush.	Capacity to ship per Day. Bush.
Illinois Central (Sturgis, Buckingham, & Co.)	700,000	65,000	225,000
Do., New Warehouse ..	700,000	65,000	225,000
R.I.R.R.(Flint, Wheeler, & Co.)	700,000	55,000	200,000
Chicago and Galena Railroad	500,000	60,000	125,000
Gibbs, Griffin, & Co....	500,000	60,000	150,000
Munger & Armour	300,000	50,000	100,000
Murne, Gill, & Co.	200,000	30,000	75,000
Flint, Wheeler, & Co...	160,000	20,000	50,000
Burlingame	100,000	25,000	50,000
S. A. Ford & Co.	100,000	20,000	40,000
Jas. Peck & Co.	60,000	20,000	40,000
Walker, Bronson, & Co.	75,000	30,000	60,000
	4,095,000	490,000	1,340,000

RATES OF STORAGE IN CHICAGO.

1. Railroad grain, taken from cars and deposited in bins, and subsequently put free on board vessels, at an aggregate charge of 1d. a bushel. That charge also covers warehouse-rent from the opening of the season till the close, should grain remain so long in store.
2. Canal-boat grain, taken from canal-boats and deposited in bins, and subsequently put free on board vessels, at an aggregate charge of 0½d. a bushel. That charge also covers warehouse-rent from the opening of the season until the close.
3. Grain received from railroads or canal-boats, from 1st November, and held till 15th April, and subsequently put free on board vessels, at an aggregate charge of 2d. a bushel. That charge also covers rent from the one date to the other.
4. Deficiency in store deliveries, a state-prison offence, rigorously enforced.

cannot be entered on a single day too soon. The West overflows with plenty; and wheat is grown upon its prairies at the low producing cost of 1s. a bushel of 60lbs., or 8s. a quarter; and, during winter, gold invariably commands a premium.

On the subject of comparative prices, I had occasion recently to furnish the following to a leading Chicago journal; and it will bear reproduction here, embracing as it does some of the most prominent peculiarities of Western trade:

"On the 1st inst., there was a margin of 1s. 1d. a bushel, for freight, charges, and profit, on wheat shipped hence, from Chicago to New York. To what extent did that margin influence shipments? Until the 6th, or five days after, not a single bushel of wheat left Chicago to any port; and it would, therefore, seem that the margin was not great enough. To test this supposition, let us take the operations of another date. On the 25th inst. (July), wheat was 5s. 10d. in New York, and 5s. in Chicago, and the through freight 10d., leaving nothing at all for risk and charges; and yet within the next five days the shipments were 38,781 bushels. Operations are not, therefore, controlled by the difference of price in Chicago and New York. But it may be objected that wheat at the moment is an unfair criterion: let us, therefore, ascertain whether corn shipments are governed by quotations. On the 25th July, there was a margin of 1½d. for profit and charges on corn shipments to New York; and for the five days following, the shipments were 546,000 bushels: while on the 1st inst., when the margin for profit and charges was twice as much, the shipments for the five days following were only 487,000 bushels. The trade is not, therefore, governed by the rates ruling in New York.

"The trade is in this shape: Chicago takes the risk to Buffalo, Buffalo takes the risk to New York, and New York takes the risk to Liverpool, and on a basis generally intended to keep all safe."

The basis is the probability as to the range of prices in England when the produce in question is supposed to be likely to arrive there. Prices therefore in Chicago follow the movements and probabilities of Mark-Lane, almost as closely and independently as prices do in New York. Generally speaking, it is, therefore, immaterial what relation prices at one point bear to prices at another point, as under the most unpromising circumstances, looking merely to prices, produce will be sent forward. In forming an opinion, therefore, as to whether the western produce trade could or could not be engaged in profitably, mere comparative quotations as to prices in Chicago and New York and Liverpool, are of no value. Transactions are governed by vague and indefinite probabilities as to the future, which look beyond the present, and necessarily so, as wheat shipped at Chicago for England either by way of the St. Lawrence or the Erie Canal cannot be laid down inside of two months. Each bushel of wheat and barrel of flour is sent forward on the presumption of being ultimately disposed of two months afterwards in Mark-Lane or Liverpool. It is immaterial if a particular quantity of wheat or flour shipped from Chicago goes no further than New York, and is consumed there, as New York prices are governed by English prices in precisely the same manner as Chicago prices are. The question on the New York Corn-Exchange is, What will wheat and flour be worth a month hence in England? The time consumed in transit, and the uncertainty thus entering into each transaction, give rise to the great multiplicity of transactions so peculiar of the American corn trade. It is not so in England. To be sure, here probabilities as to future influences are well considered, and go far to regulate the price of cereals; but the probabilities are more tangible, and as a consequence there is less fluctuation in prices from day to day.

In the American grain trade there is, therefore, more frequent opportunities of buying well than there is in England, and in proportion as the American markets are remote and inaccessible, the opportunities of buying well are the greater. New York at any season is not more than a month removed from Liverpool or London; but Chicago, if the Mississippi route is ignored, cannot supply New York or England with a single bushel of wheat or a single barrel of flour from November till May. While, therefore, there is no more than the probabilities of a month before the New York operator, the Chicago operator at the close of harvest has the probabilites of half a year before him. The question then before the Chicago operator is the probable price of wheat next summer; and the wide difference of opinion which usually prevails on that question brings the price of wheat down invariably to a low and safe level, whatever contingency may arise, and thus affords an unequalled opening to the English buyer.

As a consequence of the great distance between the growing western districts and the consuming and exporting points east, the consignment of grain into the hands of a class of people named receivers, is practised to large extent in the United States, and that practice accounts for grain movements under the most seemingly adverse circumstances, from west to east, and from New York to Liverpool. The New York receivers generally restrict their business to receiving, not operating otherwise in grain, and offer receipts on the New York Corn-Exchange. The parties sending to these receivers reside in Buffalo or Rochester, or in Chicago even, and when a consignment is made to a receiver, it is usual for the sender to value on the receiver at sixty or ninety days to the extent of seventy-five or even ninety-five per cent., as the appearance of things may warrant. Supposing then that a Chicago shipper of grain requires to move a portion of his stock, and is not pleased with the price offering in Chicago, even although that price is so high, compared with New York rates, as to leave no margin on shipments from the former to the latter, he effects his purpose by shipping a portion of his stock consigned to a New York receiver, valuing upon the receiver to the extent agreed on. Thus under the most unpropitious looking circumstances enormous quantities of grain go forward from Chicago to New York without any sale being made.

Then with respect to trade between New York and Liverpool, receivers not unfrequently send wheat and flour across to Liverpool when there is neither margin nor prospect of margin. The explanation is very easy. The receiver has control of wheat or flour or corn as the case may be, and under the impression of something favourable turning up in England he prefers to take his chance there, he valuing on the firm into whose hands he entrusts the property. Or a New York receiver may have positive instructions to send consignments forward, which accordingly he does, it being no concern of his whether the consignment is likely to pay or no.

The facilities offered by receivers in Chicago to merchants and others who collect grain in the western states, and the facilities offered by receivers in New York to merchants and others in Chicago, attract a numerous and often reckless class into the grain trade. Last summer it was said that a Chicago operator who by some means or other had borrowed one hundred and twenty-five dollars (twenty-five pounds sterling), succeeded in shipping to New York on that small capital no less than one hundred and twenty-five thousand dollars (twenty-five thousand pounds) worth of grain. He was favoured by a succession of small advances in the market price, which covered the margin required by the banker in negociating the consignment drafts, and being favoured with corresponding advances in the market-price in New York a small fortune was realized by the speculation. Such incidents are not rare, even in New York; and such being the case, the most desperate means are frequently resorted to, to exite or depress the prices of the day. It is quite common to suppress important telegrams until the market is over, while those in the secret have been buying in or selling out all they could; and it is quite common to depress the market by large sales and unfounded prognostications, with the view only of being enabled to buy in more largely than before at a lower price. Men without means to allow a banker's margin of five per cent. on consignment drafts have no other means of getting on, and they never hesitate to use their power. One potent means of starting the market a few pence on the bushel—and the practice is not a bit too vulgar for New York—is to represent a stranger then present on the Corn-Exchange as a buyer on account of English firms, and the thing is done. Large quantities of grain, which for the bare want of a few pounds could not be touched before, are next day put on ship-board at Chicago for New York, or at New York for Liverpool.

These movements of reckless operators, as said before, are not calculated to keep out men of means from participation in the trade, but, on the contrary, they create openings which probably would not otherwise occur. A combination to depress the market below its proper level, while it enables mere speculators to fill their hands and profit by the recoil, at the same time enables others to buy at a vastly lower price than otherwise they would do.

But it would be unjust not to say that there are firms of high respectability and undoubted means both in the Chicago and the New York trade. There are many such; but considering the enormous quantity of grain handled, and bought and sold—it may be ten times over—before being finally shipped from Chicago to New York, or from New York to Liverpool, it is quite impossible that these can control the trade, particularly when the trade is without restriction of any kind. To be sure, there are boards of trade established in all important towns; but it is rare indeed to expel a member for default, if his annual subscription has been paid. These boards of trade possess the power to do so, but in the presence of so many feeble members nothing can be done.

There is another very notable feature in the Western trade which of itself offers a strong inducement to English buyers. It is very unusual with Western grain operators to prosecute both the wheat and the corn trade at the same time. The trade for the time being is either in wheat or corn; and while wheat is sought for, corn is let alone, and *vice versa*. During the wheat-shipping time corn can be always had on unusually advantageous terms, and during the corn-shipping time wheat can usually be had quite as advantageously. This is owing, chiefly, to the mere whim of convenience to the receivers in New York. These only condescend to talk about wheat at one time and about corn at the other, and the particular article about which they do not talk suffers temporary neglect. These periods of oversight and neglect are of course the occasions for men of means to step in and derive the full benefit of the long distance from Chicago to New York, or from New York to Liverpool.

Of course the Western farmer, in the first instance, gave occasion to this rather strange usage. When the navigation of the lakes closed, the farmers set to work and thrashed out wheat, and sent it into the Chicago elevators; and when the navigation opened in the spring, there were large supplies of wheat in store in Chicago, and nothing else, and the farmers had got their wheat well off their hands. All the shippers of grain from Chicago were, therefore, inquiring after advances on wheat consignment only, and, in return, the receivers into whose hands the wheat went had only wheat to offer for the time. While these shipments of wheat were going forward from the Chicago elevators, the Western farmer had been giving attention to his corn, which he had been actively getting husked and cleaned. In the absence, then, of any further considerable receipts of wheat at the Chicago elevators, the stock of wheat gave way, and the corn which the farmers in the meantime had been sending in had accumulated. In this way, the action of the farmer gave an early and distinctive character to the Western trade, which it still retains; but the peculiarity cannot possibly be long maintained. The Western farmers, in the presence of buyers, would supply wheat or corn, as either might be desired; but at the moment there are good openings for wheat purchase in Chicago and New York, when the hands of receivers are full of corn, and *vice versa*.

Such are the peculiarities of the trade of the Mississippi watercourse. Sixty million bushels of grain, chiefly wheat and Indian corn, are at present practically without a market price and without a purchaser from the middle of November until the first of May, and yet every facility exists for its profitable movement and exchange; but that enormous Western grain surplus is being augmented largely every year. In 1850, the State of Iowa produced twelve million bushels of wheat, and corn, and oats; and in 1856 it produced forty-three million bushels. In 1850, the State of Illinois produced seventy million bushels of Wheat, and corn, and oats; and in 1856 the estimated yield was two hundred and eighty-five million bushels. It is much the same in Wisconsin, in Minnesota, and in Missouri; and people do not trouble themselves to move these enormous crops down an open water-course to a shipping port, but wait until the Western winter of six months' duration has been broken up. Never was there a better opening presented to European enterprise than that of the diversion of this trade into its proper channel. Every possible inducement is held out; and when the Mississippi shall have become the outlet of Western produce, it shall have become also the great highway of emigration to the Western States.

KINGSCOTE AGRICULTURAL ASSOCIATION.—This society held its annual meeting on September 16 with complete success. There is no question but that this and similar societies have a great tendency, not only to improve the cultivation of the soil, by applying those implements which the progress of science has made practical, but they still have a greater tendency to bring together, and thereby to unite in their social relationship the capitalist, the farmer, and the labourer. That such an effect is being produced in the neighbourhood of Kingscote there is not the slightest doubt, mainly attributable to the existence of the Association. The annual ploughing match took place in a field of 35 acres of old ley, in the occupation of Mr. Ed. Drew, of Calcot. Fifty ploughs had entered, 47 of which started. The competition was exceedingly good, and had not some of the competitors been in such haste to complete their task, some of the ridges would have looked more regular. The attendance in the field was good, and had not the weather been so unfavourable in the early part of the day, it would no doubt have been much larger. The annual dinner was held at the Hunter's Hall Inn. About 70 sat down. The Right Hon. T. H. S. Sotheron Estcourt, M.P., Lord of the Manor of Dursley, occupied the chair, supported on the right by J. Rolt, Esq., M.P., and on the left by Col. Kingscote. Mr. F. Burnett occupied the vice-chair.

COMPARATIVE ADVANTAGES OF CARTS AND WAGGONS.

A waggon is a four-wheeled vehicle employed in carrying articles of heavy weight and large bulk from one place to another, and is drawn by two or four horses, according as the weight of the carriage, the loads that are drawn, the distance, and the state of the roads may require. The four-horse carriage with broad wheels, and of very strong construction, is chiefly used for long journeys and loads of heavy articles, which require to be only once placed on the vehicle, and no shifting or reloading is necessary. The body of the waggon is closely boarded, in order to contain coals and lime; and grains and flour for the market are loaded in sacks. This waggon is mainly used by coal merchants and millers, and on extensive farms the thrashed grains are carried to distant markets in the four-horse vehicles. Coals and lime are also fetched from distant places in heavy loads in the strong carriages, drawn by a team of horses.

For the lighter purposes of carrying the crops of grain and hay from the fields to the rick yard a pair-horse waggon is used, which is built with open sides and boarded bottom, and drawn by two horses in tandem, or abreast, as in the four-horse carriage. The lightness of the vehicle permits a quick movement in the operations; and the use is very convenient in hay and corn harvests, when the waggon is open-built, and not encumbered with unnecessary weight of materials. Grain is carried to market in sacks very conveniently in this waggon, which in other cases is closely boarded in the sides, and becomes useful for the same purposes as the four-horse waggon, and only in the reduced ratio of two or three horses to four or five. This is the waggon of the farmer, and carries abroad and brings home all transportable articles, which are arranged in loads as circumstances may direct.

A cart is placed on two wheels in the centre of the body of the vehicle, from which two shafts extend in front, and form a connection of draught by which two horses yoked in tandem pull forwards the carriage or vehicle. The load is balanced on the wheels and on the back of the horse, which walks between the shafts, and is rendered steady by the imposition of part of the weight. The box of the cart is locked to the shafts; and being made to unlock, and the tail-board being moveable, the carriage is raised aback, and the load is discharged. This vehicle carries home and abroad loads of every kind of articles, and, being provided with projecting frames of timber spars, the crops of hay and grain are carried upon it from the fields to the rick-yard. For the purpose of distant journeys the lock is removed, the shafts being firmly joined with the body of the cart, which prevents the joggling motion, from the lock being present, that arises from the loose connection of the shafts and the cart. This provision is convenient for long journeys. The one-horse cart is contrived as the two-horse vehicle, the dimensions being reduced in strength and extent in order to suit the power of one animal. The axles of carts are mostly of iron, though wood is yet used in many cases of home use.

The four-horse waggon is a useful implement on farms that are beyond the medium extent, for the purpose of carrying lime and coals, and the thrashed grain to the market. Two waggons may be placed on large farms; and being not very heavily constructed, two horses are able to draw the loads of hay and grain during harvest. On uneven grounds in hilly tries, and from distant fields, four wheels are more secure in the travelling, and more safe from being overset with top-loads, than any carriage with two wheels; and in these cases the advantage is very apparent. But the movements are slower; much time is spent in placing and discharging the loads, which must be inconveniently large, in order to compensate the more frequent repetition of less bulky quantities. The chief use of the four-horse waggon is not for home work, but in going abroad with heavy and bulky loads of one lading in a day, or in not more than twice sent on a journey; and a convenience is found in descending steep declivities from locking the wheel, and easing the horses from the impelling weight pushing behind them. This exemption is not large in amount, as the occurrence of very steep roads is partial, and does not form a decision of preference in the implement.

The pair-horse waggon possesses a much wider range of utility than the carriage that is drawn by four horses, and the adaptation is much more convenient for the purposes of the farm. Being lightly made and neatly joined together in the component parts, the implement is managed by two horses, and one man to drive the carriage, which is a more convenient arrangement than two persons attending one waggon, as with the four-horse vehicle. The hay and corn harvests are very conveniently carried by this waggon in such loads as the distance and the condition of the roads will admit; and the implement is built with open sides, of spars, with a projecting frame. For the purpose of carrying coals and lime, and similar substances, the sides are temporarily boarded; and all articles in sacks, as thrashed grain, are carried in the open waggon of spars and light frame. This is the true harvest carriage, being lightly and neatly made, and suited to the special purpose. The boarded vehicle drawn by two or four horses is not so convenient, though it is applied to both light and heavy purposes.

The long-shaped harvest-cart of Northumberland and the south of Scotland is placed on two wheels, drawn by two horses yoked in tandem, with a boarded bottom and open sides of spars, with a projecting frame. The implement performs exactly the same purposes as the light two-horse waggon, and is fitted on the wheels of the box-carts of the farm. It would be difficult to draw, even from an extensive and varied experience of both carriages, a fair comparison between these implements. Both vehicles are drawn by two horses, and managed by one attendant, and in that respect are precisely equal: and equal loads of any articles are carried on both vehicles on steep grounds, and in crossing declivities with deep and wide furrows. Top-loads of bulky articles, as hay and grain crops, are more safely carried on four wheels, which are not so readily overset as the two-wheeled carriage. On the other hand, the long cart is more nimble in the motion, and quicker in being turned, than the waggon, which occupies more room in the rick-yard, when crowded, in harvest. The waggon may be boarded in the sides, to carry coals and lime. The cart is not contrived for that use; but being provided with two wheels, and these borrowed for use from the box-carts of the farm, the original cost being less than the four wheels of the waggon, may determine the comparison in favour of the cart, but which may be balanced by the other advantages of the light waggon. Both implements form the highest use, and are equally preferred.

The two-horse cart is used for heavy and distant carriages, and for performing the detail work of the farm. Greater weights are drawn by two horses in these carts than in the four-horse waggons, and a very large superiority for small works, in which waggons are wholly useless. Being provided with sparry frames, the carts convey from the fields to the rick-yard the hay and grain crops, though not very conveniently, from danger of oversetting the top-load that is placed over a light box beneath, except on comparatively level grounds, and not very distant carriages. In these situations, the pair-horse waggons and the long harvest-cart are both dispensed with; and the two-horse box-cart, with iron axle and strongly-shod wheels, performs every work of the farm, with the distant journeys and carriages. But in most cases, the long cart and pair-horse waggon are introduced for harvest performances.

The single-horse cart has been contrived for detail work, in which frequent and quick repetitions are required of the operations that are performed. For every kind of summer work, when the ground is dry and firm, in dunging turnip lands, laying lime and dung on wheat fallows, carrying earths and stones, and all detail work of the farm, the cart drawn by one horse is immeasurably superior to any other vehicle, as it carries loads of dung for an acre of turnip land very sufficient in twenty outgoings from the heap, and a cubic yard of earth and stones is drawn to moderate distances without oppression to the horse. The lightness of the carriage permits quick and easy travelling, to which the narrow wheels offer little resistance. The load is readily discharged in one heap, or distributed into several portions, by the freedom of construction in the tail-board and forelock, which raises the cart into a slanting position, to facilitate the discharge of the load. On all turnip farms, the use of this cart is indispensable; and even for distant journeys, in fetching coals and lime, and in carrying thrashed grain to the market, the single-horse cart is superior to any other vehicle in carrying greater weights of load, and with more ease to the horse. A single animal will draw a ton on moderately steep roads, and for any length of journey; thirty hundred-weight, and even two tons, are drawn by carriers' horses and at collieries and iron works. But one ton may be assumed as an average weight of load in farming operations. On level grounds of conveniently arranged farms of two hundred and three hundred acres in extent, where the journeys are short and the roads not steep, the hay and corn harvests are very quickly and conveniently carried on the one-horse carts, provided with frames of timber spars, that project before and behind the cart, and over the top of the wheels. The small loads carried are most amply compensated by the quick journeys that are made in frequency, and from the ease and despatch with which the loads are placed and discharged. In these situations, of which many are found, no other vehicles are required beyond the one-horse cart, as it performs every kind of work, preventing the necessity of providing implements that only execute one purpose. The long harvest-cart or pair-horse waggon, along with single-horse carts, will provide any farm with wheeled vehicles, but liable to the objection of different implements being kept for separate purposes, when a provision is known and used by which one implement, with an occasional change, is capable of performing all the carriage-work of the farm. The cheapest and most convenient provision of carriages for any farm will be in box-carts, made in the strength and weight of materials to be used by two horses, for carrying coals and lime in distant journeys, as likewise for the detail work of the farm during winter and in all heavy weathers, and the rather small size, and the construction light as possible, allowing the use by one horse during the turnip season, and all detail work when the ground is firm and the land dry. The wheels of these carts are fitted on the long carts of Northumberland, for the purposes of harvest; thus executing two performances with one expense of wheels. This is true economy; and rises superior to keeping four wheels of the pair-horse waggon solely for the purposes of the employment of the single vehicle. The sole advantage of the harvest waggon over the long sparry cart, in the top loads not being so easily overset, is wholly sunk in the superiority now stated; and waggons are exposed to the objection of the hind wheels being distant from the horses, and carrying a weight removed beyond the power of the animal. The box-cart may be merged into a vehicle for two horses during winter, and for distant journeys, and for one horse in all summer work, by the construction being neat and strong, materials light and durable, and the size resembling more the single-horse cart than the lumbering carriages commonly seen attached to two horses. A medium size and construction must be adopted. These carts require horses of spirit and muscular strength—tall, active, and powerful. The dull, sluggish animals of the waggon are not fitted for purposes in which only one or two horses make the exertion.

The waggon is a vehicle of slow progression, arising from the length of the construction of the implement, and from the hind wheels being placed at a considerable distance from the moving-power that is attached to the front part of the carriage. Hence the general handling of the implement is awkward and inconvenient in the turnings, and in all lateral directions. The irremovable attachment of slowness is gradually, and by habit, communicated to the animals of draught, and a pace is acquired in conformity with the jogging motion of the heavy length of the waggon. The drivers acquire the same habit, and gradually sink into the pace that the motive-powers have adopted, as being the least troublesome, and the most convenient and suitable. From these causes it is seen that in the countries in which the use of waggons prevails, and the grain is thrashed by the slow process of a man wielding a flail, the farm labourers are slow and more awkward in every kind of work than where carts are used as farm vehicles, and where grain is thrashed by machinery. A quickness is compelled to attend on the evolutions of machinery, and the habit is transferred to all other performances. A latent barbarism of the mind continues the use of these slow powers of action long after the inferiority has been discovered and acknowledged; so slowly are prejudices removed.

The purposes of use have been mentioned for which the different carriages of the farm are respectively fitted, and the superiority has been stated in the points of utility where one vehicle is seen to exceed another in the general as well as in the single occupations. The four-horse waggon is adapted only for some special purposes: in carrying top-loads on the farm, and in transporting heavy articles in distant journeys. These occasions are comparatively few, and do not justify the heavy cost of the implement remaining idle during the greater part of the year, as no part of the waggon is applied to any other use. The pair-horse waggon is more adapted for farm purposes, as has been mentioned; but still objected to as an expense dormant in one purpose of use, as the implement is wanting in any other adaptation. And for any detail work waggons are wholly useless. The two-horse cart adapts for any purpose of farm; and has only one inferiority, in being not so steady as waggons under top-loads, and more liable to be overset. The cart drawn by one horse is by far the most useful for detail work of every kind, but, though used, may fail for harvest purposes, and require the conjunction with a harvest cart. This last implement being fitted on the wheels of the box-carts, supply the inconvenience and complete the arrangement.

The prime cost of the different implements must have a large consideration in determining the preference of one vehicle over another, along with the liability of getting into disrepair, and the comparative expense of making the condition effective. A four-horse waggon equals the cost of more than two carts drawn by two horses; and as the number of animals employed are equal in both arrangements, the superiority of the two carts in a variety of purposes requires no argument or demonstration. Nearly four one-horse carts can be purchased for the price of a waggon. And here, again, the greater value need not be argued of four vehicles acting separately in varied purposes. The same difference is found in carts and the pair-horse waggon, only somewhat reduced by the price of a lighter waggon. The harvest cart of Scotland will cost not above the one-half of the price of a pair-horse waggon; and when the cart is fitted on the axles of the box-carts, the cost will not exceed one-fourth of the latter vehicle. The differences are most important in the case of a just comparison of the implements; and being joined with the superior usefulness of carts for general and varied purposes, there is formed an incontestable reason of preference of the cart as a vehicle of the farm. The best and most extensive farming in Britain is performed, and all farming may be conducted, by carts, without any waggons; but no cultivation of land is done, or ever will be executed, with waggons without any carts. The latter observations may settle the comparison of the two kinds of carriage implements in the value of practical utility.

ON MANGOLD WURZEL.

The mangold wurzel plant requires for its successful growth a soil of clayey loam of the best quality, that is deep and warm, both friable and tenacious. Dry lands of all kinds are not proper for the cultivation of the plant, and shallow soils are equally adverse, whether the subsoil be wet and impervious, or a hard concreted mass of heterogeneous debris. The top root of the plant requires a depth of natural formation, and a large alluvial mixture. A moist climate is also necessary for the growth of mangold wurzel, humid, and with much warmth. It is useless to attempt the cultivation of the plant unless these circumstances are present, at least in some quantity, and in a moderate degree. At the same time, many fair crops are produced under circumstances that do not comply in a large extent with these necessary provisions.

The stubble lands intended to be planted with mangold wurzel are ploughed in the early winter with the strength of three or four horses, in a furrow of seven or eight inches deep, and of proportionate width. A depth is essential, in order to afford a quantity of earth for the workings of the land, by the processes of cultivation. All lands may be best ploughed in the winter; furrow by the strength of three or four horses. Green crop lands that are prepared for early crops, as mangold wurzel, will derive much benefit from a deep furrow of earth. So soon in the spring as dry weather and the proper convenience of the farm allow the work to be done, the land is ploughed across with deep furrows, in order to reach the bottom of the winter ploughing; and in a narrow width to cut the land into thin slices, which will facilitate the future reduction of the soil. A heavy and severe harrowing follows the cross ploughing, and then a rolling with a cast-iron implement of a ton in weight, after which a second harrowing raises weeds and stones into view, which are picked by hand, and removed from the field. Within ten to fourteen days after this process, the land is ploughed lengthwise with deep and narrow furrows, harrowed, rolled, and harrowed as before, and the weeds and stones removed. In many cases the land will be prepared by these workings to be drilled and dunged. If the weather has been unfavourable for pulverising and cleaning the soil, and if the quality of the land exceed a medium stiffness, another earth must be given, as has been mentioned, in ploughing, rolling, and two harrowings, and a picking of weeds and stones. When lime is applied, it is spread evenly over the surface of the last earth, and harrowed into the fine tilth, when the drillings of the land mingle the lime with the soil in a very efficient manner. In order that the quick lime may beneficially increase the temperature of the soil, the dose must be liberal not under 200 bushels to an acre, and applied in the hottest possible condition immediately on being reduced to powder by the application of water. In this condition, the inherent caloric of the lime imparts the most warmth to the ground.

The land being now ready, clean and level, the common plough draws a heavy furrow and as deep as possible, in the direction in which the drills are wished to lie, and returns in the same furrow, throwing the earth to the opposite side, which opens a deep drill with open sides. The horses walk one on each side of the first-drawn furrow, with a main-tree of five feet in length, to allow the animals to walk widely apart. The left-hand horse now walks in the open furrow, and the right-hand animal on the level ground, while the plough is directed along the side of the comb of the last furrow, at the distance of 30 inches, and makes a new drill. The plough must move deeply and widely with the utmost strength of horses, and time allowed. In this way the plough travels down one side of the first-made trench, and returns along the other, making a drill in each journey; and when the work becomes wide, a new drill is drawn as before, parallel to the first, and the drilling continued till the field is finished.

The farm-yard dung has been carried from the cattle yards during winter, and laid in a heap in a corner of the field, or in the lane outside the gateway, and trampled beyond fermentation by the carts passing over it in depositing their contents. About two weeks before the use is required, the heap is turned over by hand forks, the lumps being carefully broken, the outside of the heap thrown into the inside, and the whole mass placed very loosely together. The component materials have been all duly moistened in the cattle-yards, well mixed together, and no dry materials allowed to be placed in the heap except in very small quantities, and then very thinly spread over the surface, and placed among wet substances. When the heap is turned over, a very active fermentation will happen by the admission of air, and the process will be in a vigorous stage, when the dung is carried into the drills of land to be planted with the mangold wurzel.

The quantity to an acre must not be under 20 loads of one-horse cart, or more nearly 25 loads, in order to ensure a good crop, as the plant requires very good encouragement, both in the quality of the land and in the quantity and quality of the dung. The heaps in the drills are spread by hand-forks evenly along the hollows, when the drills are split and reversed to cover the dung. The right-hand horse walks in a furrow, and the left-hand horse on the top of the second drill from the other horse, while the plough splits or moves three-parts of the intervening drill to the right hand, and lays the earth over the dung. The plough returns in a furrow, and lays the earth over a drill from the opposite side of the first covering, the horses walking in furrows two drills apart, with main-trees five feet in length, to allow that distance between the animals. The dung is now deeply covered by a drill of loose moist earth, in which the seeds of mangold wurzel are deposited by hand-dibble in holes six inches apart, with two seeds in each hole, in order to gain a certainty of a young plant from each hole. The seeds are sown in a continuous stream, by drill machines provided with barrels and cups for large seeds; but experience has given the preference to dibbling, as giving a more even braird, and a better shape of drill for the growth of the plant. No advantage worth the labour attends the steeping of seeds in the various substances that have been mentioned. The mixing by hand rubbing with quick lime, after being steeped in water, prepares the seeds to be easily parted for sowing; but beyond that convenience no benefit has accrued. After the seeds are deposited, the drills are rolled by the second weight roll of the farm in about 6 cwt., which levels the tops, and renders firm the ridges for the use of the plant. The quantity of seed is about 4 lbs. an acre, and the season of sowing from 20th April to 10th May. Early crops are the best; and the experience of the writer has not found much damage from seeding from the early crops of the first week in April; but only early climates allow this season of sowing mangold wurzel.

When weeds have risen over the ground, and the plants of mangold wurzel have obtained a size and strength to endure exposure and movements of the soil, and to show that all seeds have produced plants, and no more may be expected, the horse-hoe must begin its work by ploughing the hollows or intervals of the drills. A miniature plough, drawn by one horse, which goes and returns in one hollow, lays a furrow from each side of a drill, and performs the work in the most superior manner, as the narrow point of the common share takes a better hold of stiff-bottomed lands than any other scuffler yet devised. The miniature plough requires double time of the scuffler, which moves only once in the interval; but true economy ever consists in having things well done, whatever the nature or kind may be. The ploughing of the intervals of the drills must be deeply done, and near to the growing plants, as not to tear away the dung from the bottom of the drill. The interval may then be worked by the scuffler, which is constructed with a front two-winged sheave, and two posterior knives, which move the soil and cut the weeds. These scufflings are used to kill the growth of all weeds, and to pulverize the soil in the hollows, from which arises much of the benefit derived from green crops. A second ploughing by the miniature plough will be required in August, and the light scuffling continued. Two miniature ploughs joined by diagonal cross bars over the beams of each implement placed a part in the distance of a drill, and provided with two handles, as a common plough, constitutes by far the best drill scarifier yet devised, after all the ingenuity expended on that part of agricultural implements. Two horses walking one drill apart draw the implement which bestrides a drill, and lays a furrow from each side of it, while the narrow-pointed shares pierce the ground in a way much superior to any scarifier yet known. And this depth is more necessary on the stiff lands that produce mangold wurzel than on the light soils of the turnip description. But on any lands the point of superiority is found.

When the drills are ploughed in the intervals, the hand hoe is employed to cut all weeds on the top of the ridglets, and to leave the young plants of mangold wurzel in single stems, at the distance of twelve to eighteen inches. The plants must stand upright, or nearly so, and not bare of earth in the roots, and under stem. The soil lies loosely around the plants and over the drills, and all weeds are cut and pushed into the intervals, whence the life is killed by the scufflings of the implement for that purpose. The second hand-hoeing is done as the growth of weeds and hardness of the soil in the drills is seen to require. It moves and partially digs the soil, and cuts the weeds that have arisen. If any tall weeds subsequently arise, the stems are pulled by the hand by persons walking along the drills, as the scufflings and hoeings have ceased after the leaves of the plants cover the drills, and shade the intervals. In this state the crop grows to maturity.

The general ripeness of the mangold wurzel plants happens in the month of October, and is evidenced by the full grown appearance of the roots, and the decay of the outer leaves. The outermost foliage is pulled by hand so soon as decay commences, and given as food to young cattle in the pasture fields or to swine in the store yard: no decay is allowed to remain on the plants, and to contaminate the inner foliage; it must be pulled and removed. In dry weather the roots are pulled by hand, and shaken clear from earth, the top root cut off by sickle at the junction with the stem, the top of leaves is severed from the plant at the insertion of the neck, and the roots and tops are placed in separate heaps or in different rows, allowing room for a cart to pass along between them. An interval of some days will make dry the earth that adheres to the roots, and it will fall away by the throwing into the carts, which convey the roots to prepared bottoms in the field, a waste corner of ground, or in the rick-yard, on which, being about six feet wide, the roots are built into longitudinal piles to the central height of four feet, and tapered to a narrow ridge. The roots are built snugly in the pile, with the thick end outwards, and tapering regularly in the sides to the top. A covering of thatch-straw is laid over the pile, and covered with one to two feet of earth, which is again covered with loose straw, or with stable-dung, to protect it from the severe frosts of winter. The pile is opened at one end as the roots are used, and closed with straw for protection. The leaves of the crop of mangold wurzel are carried from the field as required, and supplied as food to young cattle in the yards and pasture fields, and to store swine. Any remnants on the field are gathered by sheep, and the ground is made clean for being sown with wheat.

Mangold wurzel produces the largest weight of crop of any cultivated plant, and the value claims a high place among the useful articles of food for animals. An average crop may be stated at 25 to 30 tons on an acre, and the general produce ranges from 20 to 40 tons, and even 45 tons have been recorded. From a lengthened cultivation, and a gradually-extended exposure, the plant may become acclimated, and withstand the severity of winter as well as turnips. This result might be tried by planting the roots of the strongest and most vigorous appearance, and by preserving the seed for future propagation of those plants that escaped destruction during winter, and have seed the next summer. By persevering in this way for a period of years it is very probable that the enduring quality might be conferred, and very much increase the value of the root.

Mangold wurzel contains 150 parts of nutritive matter in 1000, and is inferior to potatoes in the ratio of 150 to 200; it is superior to turnips and carrots, and inferior to cabbages. An acre of 25 tons of roots and leaves will yield 3,120 lbs. of nutritive matter; and 1,000 lbs. of the roots contain 16¾ lbs. of the same substance. Einhof states that 18 tons of mangold wurzel are equal to 15 tons of ruta baga, or 7 tons of potatoes, or 3¾ tons of good meadow hay, each quantity containing the same nourishment; but the quantity of roots can be grown on less than an acre, and it will require two to three acres of meadow land to produce the equivalent quantity of hay, and of all the root crops the least exhausting for the land is mangold wurzel.

Composition of three varieties of mangold wurzel in their natural state:—

	Long red.		Short red.		Orange globe.
Water	85·18	...	84·68	...	86·52
Gum	0·67	...	0·50	...	0·13
Sugar	9·79	...	11·96	...	10·24
Casein	0·39	...	0·26	...	0·33
Albumen	0·09	...	0·18	...	0·03
Fibre, pectin, and pectin acid.	3·08	...	3·31	...	2·45
	99·20		100·89		99·70

FLESH-FORMING PROPERTIES.

Wet state	1·60	...	2·12	...	1·94
Dry state	10·70	...	13·88	...	14·40

According to some authorities one ton of mangold wurzel remove the following quantities of mineral matter from the soil:—

	Mean of 3 specimens of bulb.		Mean of 3 specimens of leaf.
Potash	4·99	...	7·86
Soda	3·02	...	2·52
Lime	0·41	...	3·31
Magnesia	0·43	...	3·27
Oxide of iron	0·12	...	0·52
Phosphoric acid	0·66	...	1·94
Sulphuric acid	0·65	...	2·20
Chloride of sodium	5·29	...	12·82
Silica	0·54	...	0·76
	16·11		35·20

Hence it is suggested—

1st. That the culture of this crop on sandy poor soils, which generally contain mere traces of soluble alkaline salts, cannot be successfully practised; but that a good dry loam, or a calcareous or sandy clay soil, will be best adapted for raising good crops of mangold wurzel, because these kinds of soils are richer in soluble salts of potash and soda than any other descriptions of lands.

2nd. That the application of wood ashes, burnt clay, liquid manure, green manures, and other fertilizers rich in soluble potash, will improve the condition, and raise the quantity of a crop of mangold wurzel; because this crop does require potash in large quantities for the perfection of both leaves and bulbs.

3rd. That the addition of chloride of sodium or common salt to the manure for mangold wurzel is likely to be attended with beneficial results.

Experiments are recorded to have proved the relative value of mangold wurzel and Swedish turnips, that 3 lbs. of the former are equal to 4 lbs. of the latter; one acre of 30 tons of mangold wurzel would yield 347 stones of beef, at 6s. 6d. = £11 4s. 3d.; that one acre of 20 tons of swedes would yield but 17¼ stones, at 6s. 6d. = £5 13s. 9d.—difference £5 10s. 6d. And the opinion is generally entertained, that 30 tons of mangold wurzel are as easily obtained from an acre as 20 tons of swedes. Mangold wurzel contains 11·766 of solid matter; swedes 9·489.

It was early observed that mangold wurzel was a plant of a very saccharine matter, and that crystalizable sugar was to be obtained from the roots of the plant. The manufacture of beetroot sugar sprung up in France, under the superintendence Chaptal, the eminent chemist, in consequence of the prohibition of British colonial produce. When the sugar is refined it cannot be distinguished from the cane sugar either in taste or appearance. Five tons of clean roots produce about 47 cwt. of coarse sugar, which yield about 160 lbs. of double refined sugar, and 60 lbs. of inferior lump sugar; the rest is molasses, from which a good spirit is distilled. By distilling the juice of mangold wurzel, after it has undergone the vinous fomentation, a very good spirit is obtained, and also a kind of beer, which is said to be pleasant and wholesome in warm weather.

Professor Lampadino obtained from 110 lbs. of roots, 4 lbs. of well grained white powder sugar, and the residium afforded seven pints of spirit. Achard says, that about one ton of roots produced about 100 lbs. of raw sugar, which gave 55 lbs. of refined sugar and 25 lbs. of treacle. This result is not very different from that of Chaptal, in France.

Mangold wurzel grows in long roots, standing upright, reddish in colour, or whitish red skin, the inside veined with red, in concentric circles. A variety is yellow in colour; and another kind is the orange beet, and globe or turnip-rooted. White colours are found to yield most sugar; the long yellow contains the greatest quantity of nutritive matter; but the long red variety produces the largest crop, of which the upright tapering plants, standing from 12 to 18 inches above the ground, with one root projecting downwards, are always found to be the soundest, the most palatable, and the most nutritious.

The roots of mangold wurzel, either in a raw or steamed state, are very beneficially given to milch cows throughout the winter, and are found to increase the quantity of milk very much; but the milk is thought to be very thin and watery in quality. In a raw state there is no better food for store pigs and young cattle. In the fattening of cattle, opinions differ anent the value of mangold wurzel, when compared with Swedish turnips. The most general opinion prefers the latter; and the experiments made by feeding animals of equal age and the same breed, on the two different roots, have proved altogether inconclusive, because no two animals, of any age or breed, can be found to increase in equal weight in the same time from a given quantity of the same food. Mangold wurzel is equally grateful to sheep; and in the spring months of the lambing season, the greater juiciness of the root places it above any other plant in point of utility, and in that respect, and in that season of the year, it is most assuredly superior to the Swedish turnip, as the milking property, and not fattening, is required: and the preserving of the roots in a fresh state into March and April is a matter of no difficulty.

The value of any article of production is constituted by its quantity and quality, two properties which seldom exist together in the same organic structure. The roots of mangold wurzel contain a very large quantity of water, and though bulk must be obtained, and reckoned of great worth, as the cravings of the stomach must be satisfied, yet if nutritive value be very deficient, not much good follows, but watery scourings and other affections of the animal. Nutritive value is absolutely required, and to secure it in quantity and quality, combined with plenty, the soil must be supplied with those manures and chemical ingredients as may not fail to produce such a desired acquisition. For this purpose the above statement of the matters taken from the soil by mangold wurzel plants will afford very useful suggestions. Mangold wurzel is of surer growth than the turnip in all cases of an any way congenial soil; the produce is large, and the quality sufficient for keeping and fattening animals, and the increasing estimation shews the value that has appeared from late years in the use of spring food. The juiciness of the roots in the arid months of spring is a mighty recommendation.

No green crop plant confers greater benefit on the soil than is done by mangold wurzel; the tap root penetrates and divides the ground, and the profusion of spreading leaves shade the surface, lodge much moisture, to produce a damp condition and a decay of matters on the surface of the ground, which forms a large item of the benefit secured to the land from green crops. In this valuable property mangold wurzel is not surpassed by any root that is cultivated.

THE IMPROVEMENT OF THE SUTHERLAND PROPERTY, AND THE GENERAL GOOD DERIVED FROM THE PROCESS.

In another part of this magazine (p. 316) the reader will find a translated paper on the "Small Farm System in Switzerland," in which the writer, Eugene Rister, one of the contributors to the *Journal d'Agriculture Pratique*, has thought proper, in order to illustrate the superiority of the French system over that of the United Kingdom, to make an unwarrantable attack upon the late Duke of Sutherland and his worthy Duchess, in reference to the extensive changes effected upon the wild and formerly barren property in Sutherlandshire. We appended a remark deprecatory of the charges; but considering that a further notice should be taken of it, we propose now to lay before the reader a short detail of the circumstances under which, at an early part of the present century, the transactions referred to took place. We do so in order further to counteract the scurrilous insinuations of the writer, and exonerate the noble proprietor of the Sutherland property, who, instead of so severe a censure, deserved and has obtained the approbation and applause of every right-minded man.

At the close of the last century the property in question was in the possession of its hereditary chieftain, who was called *Mhoir-Fhear-Chattaibh*, or "the Great Man of the South," whose ancestors had for centuries been the head of the Sutherland clan. Upon his death his only child, and the last of his race, inherited the estate and became Countess of Sutherland. The property consisted of 800,000 acres, chiefly wild mountain land, in a complete state of nature, producing little else than a sour herbage, scanty enough, and heather, on which a few wretched cattle and blackfaced sheep were pastured in summer, and half-starved in winter. It contained a population of 16,000 souls, who in their moral and physical condition were not much in advance of the cattle they looked after. Their cabins were constructed of mud, or stones put together without cement, and consequently exposing the inmates to the wind and rain, as well as the cold. The small quantity of land they cultivated produced but a few oats or potatoes, that frequently failed, in which case famine succeeded, and in one instance continued for seven years. Misery and want, in fact, were the normal condition of the Sutherland clan.

Soon after the death of the old chieftain the Countess of Sutherland was married to the Marquis of Stafford, a rich and benevolent nobleman, who on coming into possession of the Sutherland estate, concerted with his wife on the means for improving the condition of the people. After many ineffectual attempts to civilize and introduce better habits amongst them, it was determined to remove them in a body, with the option of either emigrating to America, or of forming a colony on a tract of excellent land on the western coast, where it was arranged to build a town for their accommodation. In pursuance of this plan three thousand families were removed from their wretched cabins, the majority of them willingly; but others it was found necessary to eject. Many chose to emigrate to America, the Countess providing everything for their accommodation on the voyage, and a sum of money to support them upon arrival until they could obtain work. A large majority, however, settled at the new town of Helmsdale on the coast, where comfortable dwellings had been erected for them. For that purpose the Countess of Sutherland had to import all the materials required for the work. Lime was fetched from Sunderland, coal from Newcastle, slates from Aberdeen; whilst engineers, masons, quarrymen, sailors, cartwrights, joiners and bakers, were brought from the south, both to supply the needful assistance, and also to instruct the population. Churches and schools were built, and a substantial stone pier erected, the latter at an expense of £16,000. Bridges were thrown over the streams, roads were opened up to all parts of the country, and inns and posting-houses were established. The land in the vicinity was cleared of heather and burned, and then broken up and cultivated; whilst every encouragement was held out to the people to acquire habits of industry and useful knowledge.

In ten years the trade of Helmsdale employed thousands of tons of shipping, a successful fishery was opened, and in place of the heather fine crops of wheat, barley, oats, and turnips were seen, the land being cultivated upon the modern system. On the other hand, the inhabitants had become their own artizans, having been taught by the strangers, who being no longer wanted, had gone back to their native districts. From being an ignorant, idle, turbulent race, the natives have become clever workmen in all handicraft, skilful fishermen, hardy miners, and good farmers. For many years the income derived from the property was wholly expended in making the improvements necessary to promote the welfare of the inhabitants, and a course of uninterrupted prosperity has marked the progress of the little colony.

But the mountain land—what of that bleak, barren and apparently impracticable wilderness? What was done to that wild country after the equally wild inhabitants had been so "dispossessed?" All has been changed there too. Those boggy mosses which would not at any season bear a small bullock, and scarcely a sheep, and that in winter were unapproachable, were drained—the high grounds were pared and burned, and thus, in place of a scanty herbage maintaining a feeble existence under the heather, the mountains are covered to their summits with a fine close natural grass. The whole district has been divided into 29 sheep-farms of 25,000 acres each. The water drawn into the open drains from the mosses is now economised for the purpose of irrigating the pastures below in dry weather. Upwards of 20,000 acres of the valleys and level grounds are under cultivation, and grow abundance of corn, and green and root crops, the latter to support the sheep and other animals in the winter. Instead of a few stunted cattle and sheep, many of which were starved with cold and hunger in a severe season, those once-barren hills support nearly 200,000 sheep of the Cheviot breed, summer and winter, which produce four or five pounds of wool each, and supply the Lothian markets with 30,000 or 40,000 stock sheep annually for fattening.

Such is the present state of the Sutherland property, and such have been the results of a plan which a French writer has thought proper to condemn. It is true, that at the time when the affair was in progress a similar outcry was raised against the proprietor, both in England and on the Continent; and the matter being at length referred to in the Houses of Parliament, the Marquis of Stafford judged it proper, through his steward Mr. Loch, who had had the entire management of the property, to vindicate his conduct and that of the Countess of Sutherland. This was done in so clear and satisfactory a manner, in the year 1820, that after due investigation into the truth of Mr. Loch's statement, the King conferred upon the Marquis and his Countess the title of Duke and Duchess of Sutherland.

Nor is the charge of the French writer that the Duke of Sutherland has preferred sheep to men, and that he has driven out the latter to make room for the former, less false. It is true, that on those bleak mountains you do not find the wretched hovels which formerly existed, and that their only inhabitants are the shepherds who look after the large flocks that now feed on such abundance of herbage. But the fact that the population on the entire estate has increased from 16,000 to upwards of 20,000 gives the best answer to the charge, whilst it establishes beyond a question the success of the whole proceeding, and the benevolence by which it is characterized.

When the present Duke acceded to the property in 1840, he visited his Highland tenantry, and was received with the warmest marks of attachment and respect. He found *every farmer* on the mountain estate prospering, the land having been leased to them at 1s. per acre. Those who had settled on the coast were equally successful, both in trade, agriculture, fishing and commerce, and the land around Helmsdale now yields a rental of 30s. per acre. And there, as a late excellent writer has said, has the descendant of the Mhoir-Fhear-Chattaibbs, from his lofty feudal town of Dunrobin, which overlooks the coast at Helmsdale, created and encouraged a scene of activity his ancestors never dreamt of.

THE SEWAGE QUESTION.—THE RELATION OF TOWN AND COUNTRY.

In our last paper we explained briefly the method by which Mr. Austin proposes to meet, in some measure, the sanitary requirements of this important subject now under consideration: we now propose as briefly to describe the way in which he meets its agricultural necessities.

The liquid resulting from the process described in our last paper, although comparatively pure and indeed freed from all obviously disgusting peculiarities, is far from being robbed of its fertilizing power. It still contains in solution all the most valuable properties, and these, in the present state of knowledge on the subject, can practically only be made available by the application of the water itself to the land. In some towns the circumstances of the surrounding district forbid this application, and it will be a subject for further inquiry whether, in such cases, the water flowing off should be subject to more complete deodorization than can be accomplished by the above process. But in the majority of cases there is no insurmountable impediment to this application of the liquid sewage; and the evidence clearly points out, *that if only proper means be adopted for this application, and for disposing of the produce*, very great advantages may be expected from its use."

After duly considering the results of the various plans carried practically into effect for the utilization of liquid sewage, Mr. Austin conceives that it is only in the application of very large quantities of the liquid to the land, that thoroughly satisfactory results may be looked for. Thus, for instance, in the somewhat celebrated, because so often discussed case, of Rugby, Mr. Austin considers that the quantity of sewage liquid there distributed, should be applied to a surface equal to one-fourth or one-fifth only of the land, instead of the whole as at present, in order to obtain results similar to those obtained in Edinburgh. The large quantities of water thus necessitated are obviously incapable of being applied to the land through the medium of underground pipes with hose and jet. Mr. Austin therefore proposes to apply the liquid sewage "after separation of the solid matters" by a combination of underground mains with Beckwith's system of contour gutters. The quantity which could by this method be delivered at a certain spot, and distributed over a given area, would be limited only by the size of the pipes, and the pressure applied thereon by gravitation or engine power. By opening valves placed at convenient points, the pipes would deliver into small troughs, whence the sewage would discharge into the top gutters, and thence into cross feeders as required; and with the same sized mains, one lad would superintend the distribution of many times the quantity that it is practicable to get on to the land by means of the usual small subsidiary pipes and the hose and jet.

In order fully to understand the peculiarities of this proposed combination of underground mains or pipes with open gutters, let us glance at the method adopted to form these gutters. For the system of operation which Mr. Austin prefers, we are indebted to Mr. Beckwith, of Credition. The system has been applied to some water meadows, on the property of Sir Stafford Northcote, near Exeter, who furnished a description of its peculiarities in a paper sent to the *Journal of the Royal Agricultural Society.*

Along the line of the highest ground, a gutter is laid out in the usual manner, having an inclination throughout its length or fall of 2 inches in 4 yards. The width of this "carriage gutter" should be 12 inches. Towards the termination, however, these dimensions are gradually reduced till the gutter dies into the ground. On the supposition that the slope of the ground below the carriage gutter was perfectly uniform, the water supplied and overflowing its sides would be shed over the land in a uniform stream. But as, in practice, the ground generally possesses various inequalities, these cause an inequality in the shedding of the stream, this being greatest in the lowest parts, and entirely absent in the highest. To allow the equality of distribution, subsidiary gutters are carried along the ground at a lower level, but in the same direction as the main carriage gutter. Into these subsidiary gutters the water is delivered from the gutters above, and re-distributed over the land. Thus with a carriage gutter at the upper part, and a drain at the lower part of the field, the water shed from the carriage gutter would only pass over the lowest parts or hollows of the land to the drain, but by having the subsidiary gutters between these two points water is caught up and re-distributed to the land. It is obvious, however, that to distribute the water uniformly over the space of land between the gutters, these must be level throughout their length, without any fall. It is in laying out these gutters so that while they follow the peculiarities of the ground, they are kept uniformly level, that the main feature of Mr. Beckwith's system resides. A simple instrument is all that is required to mark out the line of the gutter, a plough of peculiar fashion being used to trace out the line, and cut the trough of the requisite depth and width. The instrument required consists of two battens or strips of wood some five feet long, and fastened together at the top, so as to form a triangle, the legs or extremities of which are placed at a distance of four feet apart. The two legs of the triangle are kept apart by a cross-piece placed near the apex. From the apex a plumb-line is suspended. When the two legs are placed on ground on the same level, the plumb-line crosses a notch in the cross-piece, denoting that it hangs vertically. If, however, one leg rests upon a spot of ground at a different level from that on which the other leg rests, the plumb-line will hang out of the line of the notch. By moving the free leg about, till it rests on a spot of ground allowing the plumb-line to hang vertically, the two legs will rest on spots of the same level. The spot on which one leg rests is then marked, and the other spot is used as centre, from which the instrument is worked till the other leg is again found to rest upon a spot of the same level. By proceeding thus, working the instrument like a pair of compasses, a series of markings are obtained, which denote a line which in plan may be tortuous and irregular, but in section exactly level throughout its length. The plough passing over the line thus indicated cuts the furrow which is to serve as the gutter, the width and depth of which are about 4 inches. When in marking out the line of the gutter a spot is reached where it is impossible to get a level, "a stop is put in the gutter, and a fresh level taken for its continuation. Thus when the higher part of the gutter is full, the water runs over alongside of it, and also flows over the stop into the lower part of the gutter, which distributes it over another portion of the field,

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KEIGHLEY AGRICULTURAL SOCIETY.— The seventeenth annual exhibition of the above society was held in the field known as the Cricket Field, on the Skipton road, near the Mechanics' Institution. The entries were on the whole fewer than last year, the total of all kinds of animals, and butter, agricultural implements, &c., being 647. The exhibition of bulls was excellent. The sheep of various classes were also excellent, and many of the horses exhibited were of prime quality. The poultry show was large, and Mr. James Dixon, of Bradford, and Messrs. Beldon and Bird, of Eccleshill, carried of several prizes. The pigs sustained the high character achieved by the district for rearing the porcine breed. In the afternoon the judges, exhibitors, and friends sat down to an excellent dinner in the Devonshire Hotel, when the Marquis of Hartington presided. We have not space to publish a full list of the prizes, but we may mention that in the gentlemen's class the prize (a silver medal or £3) for the best bull was awarded to Mr. William Gomersall, of Otterburn; and the second (bronze medal or £1) to Sir Charles R. Tempest, Bart., Broughton Hall. Mr. Henry Ambler, of Watkinson Hall, obtained the prize (silver medal of £2) for the best short-horned bull under two years old, in which class there was no competition. The prize (silver medal or £1 10s.) for the best bull calf, was gained by Mr. Gomersall; and the second prize (bronze medal or 15s.) by Mr. Henry Ambler. Sir C. R. Tempest obtained the first prize (silver medal or £3) for the best short-horned cow; Mr. R. Middlesbrough, of South Milford, the second prize (bronze medal or £1); and Mr. J. G. Sugden, of Eastwood House, was highly commended. Mr. Joseph Simpson, of Spofforth Park; Mr. Stephen Barrett, of Harewood Bridge; and Messrs. Brearcliffe and Firth, of Dunkeswick, obtained prizes for sheep. Amongst the successful competitors for premiums for horses were Messrs. Lister and Cockshott, of Addingham; Mr. George Smith, of Keighley; Mr. John Smith, of Keighley; Mr. W. Parker, of Keighley; Mr. J. Ingham, of Bradford; and Mr. J. Craven, of Keighley. Mr. J. Greenwood, M.P., of Swarcliffe Hall, obtained the prize (£2) for the best hunter, in which class there were six entries. Mr. W. B. Wainman, of Carhead, obtained a large number of the prizes offered for pigs. In the poultry classes Mr. James Dixon, of Bradford, was a very successful competitor, carrying off several premiums. Messrs. Bird and Beldou, of Eccleshill Moor; Mr. J. Tiplady, of Shipley; Mr. J. Smith, of Keighley; and Mr. J. G. Sugden, of Eastwood House, also obtained prizes. £3, the prize for the best plougher, was awarded to Eli Dawson, of West Morton; and £1 10s., the second prize, to Amos Mawson, of Bradford. There were nineteen entries. For the best plougher under 18 years of age, a prize of £2 was offered, and it was obtained by Samuel Jennings, of Hawksworth. The second prize (£1) was awarded to Allen Hudson, of East Morton. There were only three entries.

THE PRESENT CONDITION OF AMERICAN AGRICULTURE.

(*Continued from page* 194.)

Of the journals enumerated in my list, some, in addition to agricultural matter, contains much of a miscellaneous nature, the better to ensure a wide circulalation; but all of them look directly to the agricultural classes for support. Mr. J. S. Skinner, after leaving the *American Farmer*, edited the *Farmers' Cabinet*, a useful publication, carried on for some time by Messrs. Greely and McEbrath, proprietors of the *New York Tribune*; and in 1848, he established the *Plough, Loom, and Anvil*, an agricultural and mechanical journal, as its title imports. The most remarkable instance of success, in our time, of an agricultural paper, is the *American Agriculturist*, which three years ago, by mismanagement or other causes had almost run out of existence; its subscription-list having been reduced to a few hundred. When it had reached the close of its XIVth Volume, it was purchased by Mr. Orange Judd, for a paltry sum; but he speedily brought about a decided change for the better. In the three years and a half which have elapsed since that time, he has spent 23,000 dollars in advertisements, and about 3,000 dolls. in the purchase of *seeds for gratuitous distribution* as prizes or premiums for single subscriptions, and clubs. His plan has been to give to each subscriber one or more small packages of rare seeds to be selected at option from a lengthy assortment published in his paper. In this way he is said to have distributed over a ton of Chinese sugar cane, or *Sorgho* seed, and other things in proportion to their place in public estimation. The result of his advertising is shown in the fact that his paper bill for a single month is 202½ reams, which allowing two sheets to each paper, or 250 papers to the ream, shows a circulation of over 50,000 copies. There can be no question that success now-a-days is mainly dependent upon judicious advertisements.

There is perhaps no influence at work in this country so potent in awakening public interest in agricultural improvement as the *New York Tribune*, which by its position and circulation in the rural districts is a mighty agency for good. The circulation of the weekly edition of the paper is above 175,000 copies, and throughout our great Western territory a copy may be found in almost every house. It is the only one of our New York dailies that makes agriculture one of its leading features, and its influence with the producing class is correspondingly great. On a late occasion it sent its special agricultural reporter a journey of eleven hundred miles, merely to attend Mr. Alexander's sale of Shorthorns, and is now publishing a series of sketches of our leading herds and farms, somewhat in the style of the articles, on the "Herds of Great Britain."

With these facts, then, before you, does it not seem as if we had a great promise for the future?—as if, when necessity compels our farmers to apply science to their operations, we should be ready and able to see the truth, and to utilize it too?—that the 300,000 agricultural papers now regularly lying on farmers' centre-tables, would be a mighty leaven to raise the whole mass and bring about a better system of farm management?—that an American, mindful of the achievements of our mechanics, should look for the time when his farming implements shall be cheerfully recognized as the most efficient in the world?—and when, to know what manure is best for this crop or that, and what will cure this or that trouble in his herd, he will not be obliged to consult even so good a foreign authority as the London *Mark Lane Express*.

The two steam ploughs, described in former letters of this series, are not the only ones before the American public. I have one in my mind's eye at present—one invented by Mr. Charles F. Mann, of Troy, New York. The inventor is proprietor of a large machine-shop, and a thorough mechanic, of course. It having been suggested to him that a steam-plough was a great desideratum for our farmers, he commenced experimenting a year or two since, and last fall called upon the New York State Agricultural Society to report its worthiness or unworthiness to receive the prize offered by the Society. Accordingly, a committee was appointed, and the machine was tried with tolerable success. The engine is intended, as usual, as a tractor of a frame of ploughs, but was specially designed to draw loads on common roads as well. It this latter respect it meets with commendation at the hands of the committee, for they say:

"The power of draught evinced; the facility with which the engine was steered; the fact that it could surmount the obstacles of rough ground, of soft, wet spots, and of considerable elevations, and all without sufficient jolting to displace or impede the working of its machinery, surprised the best mechanical judges who were present; and, while the current opinion was that the whole affair was still too crude to be considered in the light of a 'steam-plow,' the hopes of the most incredulous could but be excited for the ultimate accomplishment of all that is desired in such an engine."

In all these particulars it does not greatly differ from Boydell's engine; but let us see in what Mr. Mann's method of laying his track is peculiar. The machine is thus described in the report of the judges:

"The platform of the engine rests upon two main travelling wheels, four feet in diameter; the forward end supported by a double castor, or two-wheeled truck, turned to right or left by the steersman above. These castor wheels are two and a-half feet in diameter, and flanged; a slack chain of traction links, each link twelve inches long and six inches broad, revolves of itself within the flanges, so that one link always forms a square support to the convex surface of the wheel, while the chain is loose enough for a second link to be flat upon the ground, when the wheel passes off from the one behind it. This is very ingeniously arranged, although we do not know whether it is new or not.

"The main travelling wheel on each side is surrounded by an endless chain, composed of links fourteen inches long and twelve inches broad, which forms the track on which the wheel runs. But the power is not applied directly to the wheel as in the driving-wheel of a locomotive. The endless chain (which is composed of eighteen links in all) passes forward of the travelling wheel, around a wheel eighteen inches in diameter, which wheel is not round, but *pentagonal*, and has forks at each angle, fitting between the links of the endless chain.

"The power is now applied in this way: A cylinder on each side of the boiler turns a six-inch pinion at a high rate of speed, say one hundred and fifty revolutions per minute; this pinion plays into a large twenty-two inch cog-wheel upon the shaft of the pentagonal driver; and as the speed by this gearing is decreased, the amount of power is correspondingly and very greatly enlarged.

"The driver pulls the endless chain around, which draws upon the top of the travelling-wheel; thus, in reality, making each spoke in that wheel, act like a lever of the second class; having the ground for the fulcrum, the axle of the wheel for the weight or resistance, and its upper surface for the power in *prying the machine along*. The upper side of the endless chain is thus constantly tight, while the lower side is slack, and hangs down loosely enough to supply the travelling wheel constantly with a firm track or support.

"This mode of applying power we believe to be novel and original, but we have no means at hand of determining with certainty.

"The endless chain, which, as will be seen, must be very strong to meet the *pull* upon it, is composed of square iron frames, in which a wooden shoe is secured of two-inch plank; the whole is said to weigh 8,000 pounds, and to be able to carry fuel and water for five hours' work. The engine was, as we have seen, a double one, operating on quarter-cranks, to avoid any dead centre in turning the drivers; the cylinders carried five and a-half-inch pistons, and ten-inch stroke, and the amount of steam calculated for average use was 70 lbs.

"The boiler, however, did not seem quite capacious enough to supply steam to the full capacity of the machinery."

You, who have watched the progress of Mr. Boydell's experiments will understand whether our American inventor is destined to be rewarded for his pains. I must confess to some doubts as to the utility of traction engines for farm purposes, but I can do no less than record the experiments of their friends. Whether or no "Talpa's" idea of a soil-crunching machine will ever be put into practical shape, is more than can be prophesied at present. If it can, the ingenious producer will reap a rich harvest in America, as well as in England. In addition to the liberal premium of the Illinois State Agricultural Society for an efficient steam plough or cultivator, the Illinois Central Railroad Company have announced their intention of adding to it, that a worthy remuneration may be made to the enterprizing man who will bring a plough to cultivate the fertile prairies of the New State. I do not think that either Fowler's, Smith's, or Boydell's apparatus would meet with favour—for they are either not effective enough to suit Western ideas, or too expensive for our pockets. An American farmer is, perhaps, a little unreasonable in his demands; he must have a wonderfully effective farm tool at a nominal cost. Unlike your own cultivators, he will not pay high prices to secure great durability. He does not wish his implements to last for ever, for he argues that in this inventive country something twice as good might be afforded at the same price before his costly implement should be half worn out. "Give us cheap tools that will make good work," he says, "and when they are worn out we will buy more." And I think we are right, for beyond a certain point of durability it is useless to go—the increased strength is often secured at the expense of portability and easy management.

The weather during the past three months has been somewhat unusual, and that of June remarkable. Winter grain has been favoured by a continuance of showery weather in many sections of country, and there is every indication that the general crop will, to say the least, be an average one. Spring crops, which need a warmer temperature, are somewhat backward, and in the western parts of this State, fears have been expressed that our Indian corn would not mature, unless a change should come. The fields from Albany to Seneca county do certainly look unpromising; but the week of hot weather through which we have just passed will have its favourable effect. I do not think I ever saw so little injury from weevil and Hessian fly as this season, and attribute it in part to a remarkable frost which swept over a large section of country in the early part of June. On the night of the 4th of June, when by rights the thermometer should have marked an average of 65 degs., the mercury fell in places much below the freezing point, and ice was formed in Ohio, to the thickness of half-an-inch. Two days after, I came from central Kentucky diagonally through Ohio, and in the vicinity of Columbus saw the tops of shrubbery alongside the track scorched and blackened by frost, as if a simoom had passed over them. Corn (maize), rye, all fruits, and garden vegetables were badly cut up, and a gloom settled down upon the farmers of the West, at the thought that on the heels of two poor seasons a third was to follow. The result that we can fully see, now that a month has elapsed, is less unfavourable than had been anticipated, and while great local injury has been inflicted, the aggregate is but small. In Ohio, where the loss was supposed to be most considerable, the smitten territory may be bounded on the south by the National road, on the west by the Columbus and Sandusky railroad, and on the east by Pennsylvania; the whole making a quadrangular plot. The yield of this tract, as reported to the State auditor in 1857, when an extraordinary crop was reaped, was 7,907,913 bushels, leaving as the product of the rest of the State 17,489,701 bushels, and when we consider that not more, certainly, than one-fourth of the crop in the quadrangle was destroyed, the actual loss to the State seems small. In Western Pennsylvania and Virginia, in portions of New York and Illinois, more or less damage was done; but it is a question in my mind if the destruction of noxious insects does not counterbalance the injury to vegetable life. I cannot see that it will be necessary to alter the estimates of crops, given in my former communications.

Efforts have been made for years past to cultivate fruits in the prairie country of the West, and millions of trees have been sold for that purpose by the nurserymen of the Eastern and Western States. The retentive clayey loam subsoil, which underlies the prairie lands, is supposed, however, to operate unfavourably on the growth of trees. If a thorough system of drainage could be pursued, there would be no ground for this complaint; and I am not sure but that in a great extent of territory, such could be arrived at. It has been computed that the loss of fruit trees within the last three years in Illinois has been not less than three millions of dollars. There can be no question but that when the sweeping winds strike full upon the trees in winter, thousands must be injured; but it is claimed that belts of evergreens can be planted so as to withstand the winds, and protect fruit orchards—a plan which seems entirely feasible.

On the 7th of this month the corner stone of the New York State Agricultural College was laid at the experimental farm, on the banks of Seneca Lake, in the presence of a large concourse of people, by our late Governor, the Hon. John A King. The ceremony I was fortunate enough to witness, and shall look back to it with pleasure hereafter. The farm is well chosen; for it comprises many varieties of soil, suitable for a wide range of experiments with various crops and modes of treatment. The institution is in the hands of our best men, among whom I may mention our late Commissioner to the World's Fair, Colonel Johnson; and, if the farmers will but subscribe funds, must enter upon a career of great usefulness. The trustees propose to charge 200 dollars (£40) per annum for board, tuition, &c., of pupils; and to make the course extend over three years. Two hundred dollars is not much to pay in comparison with the enormous return the farmer would get from the better farm management of his educated son; but as our farmers have not yet been taught to feel that their sons should be specially educated to manage a farm properly, I believe this noble college will languish out a miserable existence, unless either the State Legislature come to its rescue, or the farmers learn better. If powerful influence and hard-working members will avail aught to the Board of Management, the College will succeed, and perhaps the brilliant auguries of the day of opening may point to the noon-tide glory of absolute prosperity.

DESCRIPTION OF A TRACTION ENGINE, AND OF THE IMPLEMENTS TO BE WORKED THEREWITH, IN THE APPLICATION OF STEAM POWER TO TILLAGE AND OTHER OPERATIONS OF AGRICULTURE.

BY JOHN EWART, LAND SURVEYOR, AND AGRICULTURAL ENGINEER, NEWCASTLE-UPON-TYNE.

It is not less feasible, and certainly not less important, that steam-power should be applied to cultivation, than to the staple manufactures of the country, to steam navigation, and to railway communication. For some years past the attention of many mechanical engineers of eminence, and of practical agriculturists, has been directed to the application of steam-power to cultivation; but hitherto without that success which might have been expected in so important an object.

This failure of success has arisen not only from a defective application of the power itself, but also from a persistence in the use of implements, as a medium of the application of the power, which, from their action, are ill adapted to the purpose. On this subject, Mr. Hoskyns in his able article on "steam culture" in "Morton's Cyclopedia of Agriculture," published in 1855, remarks that "it is true that no demonstration has ever been attempted of any special inaptitude of steam-power for the work of cultivation. The impediments it has had to encounter have been those of delay, rather than denial, or even mistrust, of its ultimate possibility; and the delay itself has been due rather, it would seem, to error than neglect—the error so long persisted in, of regarding the plough as the *sine quâ non* of field cultivation, and the necessary medium through which the steam-engine was to be applied to cultivation."

It will not, it is hoped, incur a charge of presumption in any individual, who having given the subject of application of steam-power to cultivation long and attentive consideration, in offering a few suggestions by which so desirable an object as that in question may be promoted; nor will apology for craving space in the pages of your valuable miscellany with that view be required.

With the above-quoted remarks of Mr. Hoskynthe writer of the present paper entirely concurs; and he might, if any doubt can exist of the truth of the action of the plough being inefficient in its purpose, especially in its not being "the necessary medium through which the steam-engine was to be applied to cultivation," quote the observations on the subject of steam culture, in a lecture to the Manchester Royal Institution, March, 1849, and contained in the article already adverted to; but the admirable text book on all topics in any way relating to agriculture referred to, being he supposes, in the possession of most persons interested in field culture, it will be unnecessary to trespass here by any further quotation from the article in question.

The principal cause of failure in the use hitherto of steam-power to the purpose in question has been in the persistence in the use of implements, in which the action is simple traction through the soil. Although it is intended to reserve lengthened remarks on the implements to be used with the steam-engine in the tillage operations of agriculture until after having first treated of the *motor* for the purpose, yet it may be here remarked that the power of steam can never be applied to cultivation with complete success unless a considerable breadth of ground be efficiently operated upon at once, with the least amount of resistance from friction in the working of the implements. In this, simple traction must be superseded by a revolving action.

In considering the subject of the application of steam-power to tillage operations of agriculture, it will readily be perceived that there are two modes by which the steam-engine may be available for the purpose, viz.:—by traction of the implements to and fro, by means of chains or ropes, by stationary engines, but which are advanced at right angles to the line of traction, as the breadth of ground worked at once by the implements is operated upon; and by locomotive engines, to which the implements used in the operation are directly and immediately attached.

In the first of the above-mentioned modes of applying the steam-engine to cultivation, the pressure of the weight of the engine on the soil is confined only to a portion of the ground to be worked, that is, to the headlands; but, on the other hand, such engines and their working gear are necessarily of a somewhat complicated construction; and a considerable amount of force of the moving power is absorbed in the strain required to produce motion in the implement—particularly in fields of considerable extent, in which the ropes used are of great length.

In the other mode, the principal defect consists in the pressure of the weight of the engine travelling on the ground to be worked; but this objection, if it cannot be entirely obviated, may be greatly mitigated, by distributing the whole weight on as many points of bearing and on as great a surface as possible. On the other hand, nearly the whole force of the engine is available to the working of the implements, from their being directly and immediately attached to the moving power. Under all circumstances, this principle of action in the engine is quite as favourable, if not to be preferred to the other, for the purpose of applying steam-power to tillage operations of agriculture; besides which, it is not to tillage alone that such an engine may be applied, but also to drawing carriages on fields and on roads.

In designing an engine with a view to the successful and to the most extensive application of steam-power to tillage operations, whichever of the two principles already described may be adopted, the following are the most important matters for consideration:

1st. That its construction should be as simple as possible, consistent with efficiency in its operation.

2nd. That its working parts should be as little as possible liable to derangement and requiring repair; and when repairs may be necessary, either from accident or from long use, such repairs may not be of an expensive nature.

3rd. That it should be easily managed by agricultural labourers of ordinary intelligence.

4th. That it should be of as moderate cost to purchase as may be consistent with efficient working; of sufficient power with a moderate quantity of fuel for the purpose it may be required; and that it should be durable.

The foregoing remarks are general, rather than specially addressed to the subject of the present paper; but as they elicit the views of the writer on the subject of the application of steam-power to cultivation generally, such trespass on the present occasion may, it is hoped, be excused.

The special and direct object of the present paper is to submit to the consideration of mechanical engineers and the agricultural public a description of an engine for the application of steam-power to tillage and other operations of agriculture, which, perhaps, may be found to possess the properties noticed as being requisite in an engine for cultivation by steam-power.

From a previous remark it may perhaps be inferred, that the writer is in favour of the locomotive principle of action. After long and attentive consideration of the subject, and many discussions thereon with mechanical engineers of experience, the writer would decidedly recommend locomotive action for the purpose in question.

The locomotive action being assumed to be that adopted, the breadth of ground operated upon at once by the implements will limit the size and construction of the engine. For if the breadth of ground operated upon at once by the implement be less than the breadth of the engine, a portion of the ground will either be left uncultivated, or a portion of that cultivated will be injured by the pressure of the wheels on one side of the engine. In the latter-mentioned case also, the engine, from the wheels sinking deeper on one side than on the other, will be out of its transverse horizontal position; that is, it will be as if moving across the slope of an inclined plane, which would be a position of obvious disadvantage and inconvenience. Besides the size of the engine being thus limited, in order to obtain room and convenient arrangement of purchase gear, by which to multiply the power, a vertical boiler will be that to be adopted.

In the engine about to be described, the FRAMING will be best of I iron, and forming beams with hollow sides, 6 inches wide by 9 inches deep, and the thickness of the iron ½ inch. Such a beam will be sufficient to bear a much greater weight than that of the engine, but should additional stiffness be necessary, the hollows in the sides of the beams may be filled in with oak timber of a scantling of 8 inches by 2¾ inches, and secured in their places by through bolts at frequent intervals.

The WHEELS, it is proposed, should consist of a pair of driving wheels, 5 feet in diameter, placed in the mid-length of the framing, and a pair of steering wheels, 2 feet 6 inches in diameter, near each end; the last-mentioned wheels being so small in their diameter in order that they may lock completely under the platform of the machine. The whole of the wheels will be best made of malleable iron, the felloes and arms being hollow, the latter cast into cast-iron bosses or naves, and the felloes made in segments; the tires should be hoops of malleable iron, 12 inches broad and ½ inch thick, which, being put on the felloes hot, will, by contraction, keep the several parts of the wheel firmly in their places, and the whole will be of great strength combined with lightness and durability. The axle of the driving wheels should be 3 inches in diameter, those of the steering wheels 2 inches in diameter, the whole made of the best forged scrap iron.

The arrangements of the position of the wheels should be such, that from the outside of one driving wheel to the outside of the other should be the extreme breadth of the machine; the hinder pair of steering wheels should be just clear of and within the track of the driving wheels; and the front steering wheels should have the same relative position to the hinder steering wheels that the latter have to the driving wheels. So that were the wheels all of the same diameter, and placed upon the same axle, they would form two cylindrical rollers, of three parts each, on the same axle, with an interval of a few inches, at mid-length of the axle, between them.

By such arrangement, the whole weight of the machine will be distributed over six wheels, each 12 inches in breadth, or an aggregate breadth of six feet, and none of the wheels following in any part of the track of the others, the pressure of the weight of the machine on the land will be reduced to a *minimum.*

The BOILER, as it has already been stated, is a vertical one. It is proposed that the height of the principal part or cylinder should be 8 feet, with a further height of about 1 foot 3 inches, and of 2 feet diameter, as additional steam chamber. Inside the main portion of the boiler is the fire box, 3 feet in height, having a hemispherical dome 3 feet in diameter, with a flue 1 foot in diameter, rising from the said dome, and passing through the steam chamber. As to the diameter of the boiler, it should be as follows, viz :— Fire box 3 feet; water space round the fire box 3 inches; thicknesses of the plates, ⅜ inch each, in the whole 1½ inch; making 3 feet 7½ inches as the outside diameter of the boiler. The outside shell, fire box, and so much of the flue as is within the boiler, should be made of the best Yorkshire or Derbyshire plates, ⅜ inch thick, and put together with ⅝ inch rivets, 2 inches apart, centre to centre. The chimney above the boiler need not exceed the thickness of No. 7, on the Birmingham wire gauge; and in the chimney there should be a damper, with the necessary means for opening and closing it, within the perfect command of the stoker. The boiler should be fitted with safety-valve loaded with Salter's spring balance, steam pressure gauge, glass water gauge, steam whistle float, blow-off and sludge cocks, and every other appliance for safety and convenience of the most approved construction. In order to bring the centre of gravity of the boiler as low as possible, and also to bring its top to a convenient height above the platform of the machine, the boiler should be slung from the sides of the frame by saddles or inverted brackets of plate-iron, 3 feet in length, riveted to the sides of the boiler, and bolted to the frame by 3 bolts at each side, so that the fire grate may be 2 feet below the level of the platform of the machine.

The ENGINE should consist of three vertical cylinders, the pistons of which may be each of them 4½ inches in diameter, with a stroke of 12 inches. These, with their steam chests, should be firmly bolted to the boiler near to its top. The connecting rods will work 3 cranks at equal distances, or 120 degrees apart, by which only one crank would ever be on a dead point at one time, whilst both the others would always be on either the ascending or descending stroke, and by which a fly wheel would be dispensed with. This arrangement may be looked upon as unscientific, not only in dispensing with an equalizer of the stroke, but also in increasing the friction. In answer to such objections, it may be remarked, that in the case in question a fly-wheel would be found most inconvenient, if not inadmissible, from the danger of its velocity, and its weight not only being a considerable addition to that of the machine, but also in increasing the height of the centre of gravity; besides which, the difficulty, or rather the impossibility of placing this great equalizer of the motion of the engine in its proper position, without sacrifice of convenience of arrangement of most of the other parts of the machine; and the additional friction of the three cylinders is trifling to the advantages which, in the particular case in question, would be derived from the arrangement of the engine as described. The engine should be fitted with a governor, and a feed pump.

An engine of so short a stroke as that just described, and supplied by the quantity of steam capable of being generated by the boiler previously recommended, will give at least 120 double strokes of the pistons per minute, which if communicated directly to driving wheels of 5 feet in diameter, would produce a travelling velocity in the machine of more than 21 miles per hour, or more than six times that at which the machine need, or ought to travel when working. Therefore to bring down the rate of travelling to the proper working speed, and thereby to obtain a six-fold force of traction, the crank shaft should have on it, beyond the cranks, pinions, say of nineteen teeth, working into spur wheels having 37 teeth on an intermediate shaft: on this last-mentioned shaft, to the outsides of the spur wheels, should be pinions of 19 teeth, working into spur wheels having 59 teeth on a third shaft, which should extend beyond the outsides of the driving wheels. The motion of the last-mentioned shaft should be communicated to the driving wheel axle by means of an endless flat chain on each side of the machine, passed over sheaves on both shafts. The sheaves may either be round, with protuberances on their peripheries, to suit small links in the chain, or they may be canted, and the links of the chain so arranged as to hinge over the angles of such sheaves.

The STEERAGE of the machine, both before and behind, is proposed to be effected in the following manner, viz.: by turn-tables like those used on the fore-wheel axles of four-wheeled carriages, the lower circular plate of which to have spur teeth on half its periphery, into which the teeth of a pinion is to work. The proportion of the radius of the semicircular toothed segment to that of the pinion, is proposed to be about three to one. On a spindle from the pinion in question, at a height of 2 feet 6 inches above the level of the platform of the machine, it is proposed to have a horizontal tangent wheel and screw, in proportion of four to one; and on the axis of the screw a winch handle, the crank of which to be three times that of the diameter of the barrel of the screw. The upper or fixed circular plates to have small friction rollers on their faces, to prevent the opposing surfaces of the plates rubbing against each other. A mitre wheel on each of the pins or spindles passing through the centres of the fixed, from the lower or moveable plates, working into another mitre wheel on a short axle, carrying a small pulley, connected by a round band with another pulley, of the same size, on a short axle, supported by a bearing on the framing of the tangent wheel and screw, will give motion to a pointer keyed on to the axle of the upper pulley, to indicate, on a semi-circular dial, the amount of steerage. Such steerage being at both ends, and worked in contrary directions, will bring the machine round nearly on its centre; and the great power of the gearing proposed for the purpose, will render but a very trifling force necessary in steering.

Between the fore-steering gear and boiler *longitudinally*, and between the purchase gear on each side of the machine *transversely*, it is proposed to have a cistern, to contain from four to five hours' supply of water for the boiler; and also to have five hours' supply of fuel (coke) piled on the platform of the machine behind the boiler.

A suitable machine for applying steam-power to field cultivation having now been described, in most of the principal points of its construction, with sufficient perspicuity, it is hoped, to be understood without the aid of diagrams for elucidation, it may not be out of place to offer some brief remarks on the economy of its use.

As to the dimensions of the machine—

	ft.	in.	ft.	in.
Its length is proposed to be			15	0
Its breadth is as follows, viz.:				
Outside diameter of boiler	3	7½		
Breadth of side beams of frame, 6 in. on each side	1	0		
Intervals between driving wheels and frame, 1 in. on each side	0	2		
Breadth of driving wheels, 1 foot each	2	0		
Extreme breadth of machine			6	9½

As to the weight of the machine—

Boiler, engine, and purchase gear, with water in boiler, and fuel in the fire box	41 cwt.
Frame, wheels, and water tank	22 „
Water in tank	10 „
Coke on platform	3 „
Total weight of machine	76 cwt.

The foregoing statement is fully the total weight of the machine, including a supply of water and fuel for half-a-day's consumption. The following comparison with a wheel carriage passing over the ground may convey an idea of the pressure on the soil by the weight of the machine. A single-horse Scotch cart with its load is seldom less than 24 cwt., that is, 9 cwt. for the cart, and 15 cwt. for the load. It may be said that a portion of this load is borne on the back of the horse; but in answer to such exception, it may be replied that the horse bears a much less portion of the load than his own weight, besides which, the trampling of the horse is more injurious to the tilth of the soil than the weight of the cart wheels; and therefore, in the comparison about to be instituted, there need not be any deduction from the whole of the load of 24 cwt. being borne by the pair of wheels of the cart. Supposing the hoops of the wheels of a single-horse cart to be each 3 inches in breadth, there is a weight of 24 cwt. supported on a breadth of 6 inches; whilst in the engine there is a weight of 76 cwt. supported on a breadth of 72 inches. That is, in the cart 4 cwt. per inch of breadth of the wheels, against little more than 1 cwt. in the engine; or, in other words, the pressure of the engine is only about one-fourth of that of a loaded single-horse Scotch cart.

The engine described in the present paper, with a pressure of steam on the pistons of 40 lbs. per square inch, may be considered as six-horse nominal power; but by the purchase gear, the machine becomes equal to 36-horse power. Allowing 12 horse-power to be absorbed in propelling the machine itself on tilled land, which must be allowed is an ample deduction for that purpose under the most unfavourable circumstances, there remains 24-horse power available for the traction of implements, which amount of force will scarcely ever be required in tillage operations, except when ascending planes of considerable inclination.

The machine, being simple in its construction, may be easily managed by agricultural labourers; it is not, if well made, liable to be out of repair; and when, by accident or otherwise, repairs may be required, these may be readily effected at a moderate cost.

Besides the use of the machine for locomotive traction, by having the ends of the crank axle extended somewhat beyond the side framing, it may, on removal of the purchase gear, be used as a fixed engine, for driving fixed machinery up to, or even beyond, six-horse power.

Before proceeding to specify the construction of the implement to be used as a means of applying steam-power to cultivation by the engine previously described, it may be well to state the operations of tillage that it may be required to perform.

In the first place, a more or less frequent inversion of the soil, according to circumstances, is indispensable. In the second place, a complete comminution of the soil, so that the greatest number of particles may be acted upon by air and moisture, and, at the same time, a commixture of the particles with manuring substances, applied to maintain and increase fertility, must be thoroughly effected; and another most important end to be obtained by this means, is a complete removal of all weeds. And lastly, when the soil has been thoroughly underdrained, the subsoil may be broken up, and after having been fitted by the action of air and moisture for supporting vegetation, it may be mixed with the surface soil, by which the staple may be deepened, and thus enlarge the pasture of plants. It is for the purposes just mentioned that the implements about to be described are suggested for the consideration of the agricultural public.

It has already been stated, when treating of the motive power, that whatever implements may be employed in steam culture, simple traction should be superseded by a revolving action. The advantage of revolving action over simple traction is much the same as that of the action of a wheel over the action of a sledge. And it has also been stated, for the reasons given, that whatever implements may be used with a locomotive engine as the motive power in steam culture, the implement should operate at once on a greater breadth of ground than the extreme breadth of the engine.

For an invertion of the soil, the writer suggests a revolving implement of the following construction, viz.:— Let a circle be described of a certain radius, to which, at the extremities of two diameters intersecting each other at right angles, let tangents be drawn. Then with a certain radius from the points of contact of the tangents with the circle, describe arcs cutting the tangents; and these arcs will be the curves of the blades or spades.

The working part of the proposed implement should consist of a cast-iron nave, 12 inches in diameter, and 3 inches thick, into which should be sunk four tenon beds, arranged parallel to tangents to the axle, afterwards to be mentioned. These tenon beds should be 2 inches deep and 2 inches wide, and slightly dovetailed or tapering towards the circumference. From the naves just described four arms should protrude 12 inches beyond their circumferences, and which will be the limit of the depth to which the implement will work in the soil. These arms, to which the blades or spades are to be attached, should be nearly flat, about ¾ inch thick in the middle, with cutting edges of a concave form, and should have tenons to fit accurately into the tenon beds previously noticed, and the flat part of the arms should shoulder on the circumference of the naves. The blades or spades should be 12 inches in breadth, by 18 inches in length, and instead of being rectangular in their form, they should be rhomboidal, having their opposite acute angles 56 degrees; and, to keep the arms firmly in their places, circular cast iron plates, of the same diameter and 1 inch thick, should be bolted to the naves over the tenons of the arms. The naves, arms, and blades, should be keyed on to an axle of the best forge scrap iron 3 inches in diameter, so that the sides of the blades may touch each other, and so arranged that the obtuse angle of one blade may join the acute angle of the next, and the cutting edges of the mouths form a continuous diagonal line; and if seven of these blades form the working part of an implement, its length will be 7 feet, and form a horizontal spiral, about 3 feet in diameter, with a pitch of 14 feet or double the length of the implement. The blades, and also the concave cutting edges of the arms should be of steel.

The working part of the implement described above, should be mounted on an iron travelling frame, having a pair of wheels towards the back, and a pair of leading wheels on swivels in front; and provision should be supplied for raising the working part out of the soil when turning, or travelling out of action, and for regulating the depth at which the implement may be required to be worked in the soil. The last mentioned provision may be effected by means of a pinion working into a toothed sector, with the axle of the working part bearing in a radial arm or bar opposite to a bisection of the arc; and such purchase should be further assisted by screws working into wheels on the pinion axle, to which motion should be given by a winch handle on each side.*

A complete invertion of the soil being obtained, whenever it may be required, by the implement above described, the comminution and aëration of the soil, and, at the same time, the thorough removal of weeds, may then be effected by the revolving cultivator as made by Mr. Matthew Gibson, of Newcastle-upon-Tyne, which, for being worked by steam-power, may be described as follows, viz.:— It consists of a number of cast iron discs or naves, 12 inches in diameter and 3 inches thick, with a further thickness on each side of ¾ inch and 4 inches in diameter, revolving independently of each other on a round iron axle 3 inches in diameter. On the periphery of each disc are fixed, alternately on each side, ten strong iron curved teeth, of a length to penetrate vertically 12 inches into the soil, with points of a diamond form and steeled; and between each disc is a bar of flat iron, with the edge downwards, and curved with a convexity towards the teeth as they emerge from the soil, to keep the teeth clear of weeds grubbed out of the soil, and, at the same time, to break any clods of soil that may be lifted by the teeth. The last-mentioned bars, for their support, and also to prevent soil from entering and shearing the axle, should embrace the discs at their joints with each other, and their other ends supported by bars, extending across from the lifting sector on one side to that on the other. In order that the implement may cover a greater breadth of ground at one operation than the breadth of the engine, the number of the discs on the working part should not be less that twenty. The implement now being described will work to any depth in the soil that may be desired, not exceeding 12 inches below the surface; the depth being regulated, and the working part being removed from the soil when turning, or travelling when out of action, by the same means as has been previously described for the purpose, when treating of the implement for inverting the soil.*

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* The idea of this implement was taken from a paper on "New Processes, Rotary Forking and Digging," read at the Central Farmers' Club, London, by Mr. Clarke, and which appeared in the *Mark Lane Express*, February 15th, 1858. The writer of the present article has had a model made of the working part of the implement suggested, by which he finds it will efficiently perform the purpose required.

The most important application of steam-power to cultivation would be in the operation of subsoiling or breaking the under-soil without bringing it in its crude state to the surface, preparatory to deepening the staple at a future time. In this, three operations are required to be simultaneously performed. Opening a trench or furrow in the surface soil; breaking or forking the sub-soil; and filling the trench or furrow in the surface soil as the work proceeds. To effect these operations of the same breadth at once, which has been recommended to be done in the other operations of tillage, previously treated of, would require a much heavier implement than would be manageable; and besides which, the nature of the operation does not necessitate the implement being wider than the engine, without taking into consideration the much greater force required in working an implement for the purpose in question. Perhaps 3 feet at once would be as great a breadth as an implement for the purpose could be easily managed. In conformity to the recommendation of a revolving action in the implement, its construction may be described as follows, viz.:— Three cast iron cylinders of 2 feet in diameter, 1 foot in length, and 2 inches in thickness, formed in the manner of wheels, with arms of malleable iron in pairs, cast into a nave in the centre and into the cylinder. In the periphery of the cylinder should be 12 rows of mortices across the length of the cylinder, three in each row, and tapering slightly towards the inside. The size of these holes to be 2 inches by 1 inch, the larger dimension to be in the direction of the circumference of the cylinder. In the mortices should be slightly curved teeth, the points of which to be diamond shaped and steeled, and project fully 12 inches beyond the circumferences of the cylinders. These teeth should be 1 inch thick, 3 inches wide at the shoulders, tapering to 1 inch wide at the points, and keyed through slots in the tenons within the cylinders. This portion of the implement is intended to roll in the bottom of a trench in the surface soil, formed by another portion of the implement, presently to be described; and from what has already been said, its action will be readily understood to be precisely that of three pronged forks. The arrangement of the cylinders just now described, is one in the centre and in front, and two behind, one on each side, mounted on a suitable frame, with apparatus for raising and lowering a pair of travelling wheels, by which to raise the cylinders from the soil when being turned, or travelling when out of action; and to give power to such action there should be a swivel wheel in front to act as a fulcrum in lifting the implement. In front of the leading cylinder, should be a double-mouldboard plough-head, to open a furrow 12 inches wide, and lay the surface soil to each side, and furnished with a lifting screw to regulate the depth it may be required to be worked. Then in front of each of the other cylinders should be cylinders 12 inches long and 6 inches in diameter, on which should be spirals, slightly curved forwards, to take up and deposit the surface soil into the furrows formed by the double-mouldboard plough-head. The *helices* on the last-mentioned cylinders should be 9 inches deep, and those portions of the implement should be furnished with lifting screws to regulate their working to any less depth that may be required. These last-mentioned cylinders must have their revolving motion in the contrary direction to that of the larger or sub-soil cylinders, which may be effected by means of cross bands, from pulleys on the nave of the leading subsoil cylinder to sheaves on the axles of the two small cylinders behind.*

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* This is the revolving cultivator as first made by Mr. Matthew Gibson, of Newcastle-upon-Tyne, in 1853. Revolving implements for tillage were suggested by the writer of the present article in the *Farmer's Magazine* for October, 1848. The implement as made by Gibson is most efficient for its purpose; but owing to the great horse-power required to work it, it never came extensively into use; but if used by a steam-engine as the tractive force, the same objection to its use will not exist, and it will be found to be the most valuable implement for its purpose that has probably ever been invented.

* The principal working portion of the implement described in the text was the invention of one Robert Hall, a shoemaker, at Prudhoe, on the south bank of the Tyne, in Northumberland, in 1822; and although but little known, it is nevertheless the best implement ever invented for the purpose. The writer has seen it worked 12 inches deep in a tilly sub-soil, below a furrow made by a common plough in the surface soil 6 inches deep, by three horses, two going in the furrow in length, and one on the unploughed ground abreast the hindermost horse in the furrow, with the most perfect effect. In returning, the common plough opens another furrow to be subsoiled, and covers with surface soil a furrow which had previously been subsoiled. So great is the effect of the operation, that the volume of the broken or forked subsoil is so increased as nearly to fill the furrow, 6 or 7 inches deep, in the surface soil.

When the under soil may be of clay, free from stones, steam-power may be applied to draining; and with some modifications in the means to obtain a proper action, no implement appears better suited to the purpose than that described, and of which a side elevation is given in "Morton's Cyclopedia of Agriculture," vol. i. p. 707, invented by Mr. Paul, of Thorpe Abbots, near Scole, Norfolk.

Before dismissing the topics treated of in the foregoing remarks, the writer has distinctly to disclaim any original invention on his part, as there is not anything he has suggested in the present paper that is new in principle, and that has not been applied to the same purposes by the power of horse labour. With the exception of the last mentioned implement, the sources from which the different implements for the various purposes have been derived have been acknowledged in foot-notes to the text in which the description of each occurs; and the merit, if any, in the present instance is confined to designs for adapting previously well-known principles as the means of the application of steam-power to the cultivation of the soil.

If steam-power were efficiently applied to the tillage operations of agriculture, and the power and means obtained at a moderate cost in their purchase, great indeed would be the advantages, not only to those immediately concerned, but to the public at large. For not only would a cheapening of production of the fruits of the soil be a valuable result in a national point of view; but even a still more important object would be obtained from despatch, by which it would be in the power of the husbandman to choose his time for his tillage operations, which under the present system of field culture can seldom be done, as the stock of working cattle is never greater than can be fully and constantly employed all the year round; and it frequently occurs that operations commenced under favourable circumstances, as to the state of the soil, have to be continued and finished under adverse conditions, from not having an opportunity of waiting for a proper condition of the soil, without clashing with others of equal, or perhaps greater, importance.

It may be urged that the application of steam-power to the cultivation of the soil will ever be limited by particular circumstances, such as tillage farms of great extent, and flat ground. But if steam culture were successfully introduced, might not it become a profitable business to let the power and means for hire to the tenants of farms of moderate, and even small extent, as is now very commonly the practice in many districts with portable steam thrashing machines? And might not flat grounds be rendered so much the more productive, by improved cultivation, that the steeper grounds, whereon the difficulty of applying steam cultivation may be insurmountable, be applied to pastures? And if even a small portion of the horses now employed in agriculture could be dispensed with, by their labour being superseded by steam-power, might not a considerable amount of produce, now consumed by working stock, be available to the sustenance of man? These are questions of great importance, and deserving the consideration of all classes of the community—to the landowner, in maintaining the revenue from his estatet: to the tenant farmer, in increasing his profit; to the labourer in husbandry, in increasing the comforts of life; and to all other classes of society, in the cheapening the production of the fruits of the soil. All classes of society are more or less directly interested in the promotion of the application of steam-power to the tillage and other operations of agriculture.

In conclusion, the writer has to remark that he has not been actuated in giving publicity to the foregoing suggestions from any expectation of any particular benefit to himself; but a conviction of the feasibility of his suggestions, at a cost of power and means, much less than any hitherto brought before the public, and the great national interest of so important a matter, have prompted him to publish, through the medium of the columns of a serial of such widely-extended circulation as the *Farmer's Magazine*, in the hope that by so doing it may induce others more competent to the task than himself to stimulate the attention of the ingenious and enterprising to bring to perfection an object which, notwithstanding its great national importance, has hitherto made such slow progress. It is matter to excite wonder, in this age of invention and improvement in every other department of the industry of the nation, that to that of the very first importance, steam-power should still remain so imperfect in application, especially when the advantages to be derived therefrom are so obvious, and so important to all classes of society. Should any reader, into whose hands this paper may come, desire any further information or explanation on the subjects treated of, the writer will be most happy, on application to the under-written address, to afford any that he may possess or can obtain.

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JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Part 1 for 1859.

Under the circumstances, some reasonable allowance may be asked for the appearance at Michaelmas of the Midsummer part of the Society's *Journal*. The staff can scarcely be considered in working order; and no doubt the want of a most responsible officer has created some difficulty and delay. But it is still a question whether the number should ever be promised much before the time at which it is now brought out. Valuable as many of the more lengthy papers and prize essays may be, the interest of this volume centres on the great Anniversary Meeting of the year. Successful exhibitors are sure to turn at once to see how they look in the Society's pages. They are naturally anxious to know what the judges and stewards or others in authority may think of them. Moreover, such a feeling is by no means confined to those who have taken an active share in the occasion. The advocates of certain breeds, and the admirers of particular strains, will be quite as curious to ascertain how they stand in the great national estimates. Readers of a more mechanical frame of mind will be yet more desirous of learning what progress has been achieved. It becomes, indeed, an absolute duty, after a three years' interval, to note the improvements made in those classes of implements that have taken their turn again for inspection. Some people have a habit of throwing their newspaper aside when once read, but so goodly a tome as the *Journal* is sure to be received with all due respect. Even beyond this there is, we repeat, an especial air of authority about it; and while we reserve the essays, and analyses, and experiments for bye-days or winter evenings, we proceed at once to refresh our memories with all that was said and done at Warwick.

Unfortunately the memories of the best of us will have still to depend on their own strength, or will not be "jogged" until we have forgotten all about it. There is no visible cause why this number of the Royal Agricultural Society's *Journal* should not have been issued a month or two earlier. It contains, to be sure, the customary ill-arranged prize lists of the Warwick show —mere formula copy, that might have been sent to the printer two or three hours after the meeting was over, or even earlier if necessary. We suppose it is useless protesting any longer against the manner in which all the commendations are huddled together; but surely the names of the successful animals might be given. A thorough-bred shorthorn is now almost as well known by his name, all the world over, as a thorough-bred horse; and yet either is carefully erased. The famous Royal Butterfly is no better distinguished than as "Colonel Towneley's one-year-and-ten-months-old bull, bred by himself." Mr. Stratton's Matchless is "a four-year-old cow in milk," and so on. Only fancy consulting such a record as this, a few years hence, to see what the gr. gr. gr. grandam of your favourite yearling did herself at "the Royal." Or, picture a colonist showing such a satisfactory return to his friends on the arrival of the thousand guineas bull! So vague a system has really a tendency to diminish the value of prize stock.

Beyond this list there is nothing whatever on the merits of the summer show of 'fifty-nine, but a few sentences in an address from the Council. From these we gather that "the Warwick Meeting promises to be of a highly interesting character"—that "the arrangements for the Meeting are steadily progressing"—that "the entries for the implements are extremely large" —and that "the live stock portion of the show will at least be equal to any former exhibition." This satisfactory intelligence is from the report of the General Meeting in May. Report, however, of a general meeting it is not. There is not a word of the suggestions offered or observations made by the general body of the members. The whole business is confined to the usual paper drawn up, or sanctioned by the Council. At best this is scarcely respectful to a general body of members —to call them together, and then never to make a note or sign of what they say. The General Meeting on the Friday at Warwick is omitted altogether. Possibly there has not been time as yet so prepare a report of it. And we look in vain for any intimation as to a change of secretary, management of finance, or other important business that has been proceeded with this summer. Neither the stewards of stock nor of implements have anything to offer on the business of the show week; neither, most probably, will they, until time has robbed their remarks of half their use and interest.

Such criticism, it must be understood, does not apply especially to the present circumstances of the Society. We should be the first to make all proper allowance for any passing difficulty or embarrassment. We speak, rather, to a routine system that now is the very opportunity to break through. For years the reports of general meetings have been confined strictly to the reports of the Council itself. From the first, again, the prize-lists have been given without the names or any particulars of the successful animals; so that in the way of reference they are absolutely useless. There is scarcely any animal of the three pure breeds—Shorthorn, Hereford, or Devon—now exhibited at the Society's shows, but that has a name and a place in its own herd-book. It is true this was not so commonly the case when the Society was first instituted. But we must go with the times, and what might do very well in 'thirty-eight may be terribly out of date twenty years further on. After all, the strong-hold of the Society is its great annual meeting. From the experience gathered in that week we arrive at some of our best deductions and improvements. And what we complain of is that the Show is not made enough of in the *Journal*. There should be more information upon its merits, and this should come more in the way of information—not years or half-years after it is all over. We may possibly be speaking against our own interests; but we have to furnish, in two or three days, what the Society cannot provide in two or three months.

Then, and no wonder either, the work often languishes for the lack of other matter. The *Journal* Committee is sadly put to it in the way of subjects for prizes. The Counties are gradually becoming exhausted, and a continual succession of new topics must be difficult to command; so that a good history of the Show-week, and some few particulars of the proceedings in Hanover Square, would never push more valuable material out of place. In fact, we believe such a plan would tend directly to give the open body of members a greater interest in their society, and to add something to their numbers. Two-thirds of the papers in the present part might have "stood over," without in any degree detracting from their value or effect.

About the best-timed is Mr. Algernon Clarke's prize Essay on the Application of Steam-power to the Cultivation of the Land. It is a very excellent summary, so far as it goes; but, unfortunately, can be made up no closer than to February last. Since then, as we all know, there has been a deal more doing with steam cultivation. The other prize contribution is Mr. Le Cornu's Agriculture of the Channel Islands, especially interesting for the account of the Alderney cattle. Of course the famous scale of "points" is given, and their re-appearance here should set our authorities a thinking as to whether they could not draw up some such similar a code—the twenty or thirty good points of a bull, a horse, or a sheep. Amongst the more distinguished contributors, Sir Roderick Murchison, in a short letter, dwells on the Agricultural value of certain phosphatic rocks of the Anguilla Isles; where, however, Brother Jonathan has already been before us. The Americans shipped and sold during last year only a hundred thousand pounds' worth of the rock for "regenerating the exhausted lands of Virginia." We give the paper in another column. Messrs. Lawes and Gilbert continue their valuable and standard experiments with different manures. Mr. Eddy, an M.A. of Oxford, furnishes a good suggestive paper on American Implements, and the Methods of economizing Labour. Mr. J. C. Morton writes on the Allotment System; and M. Trehonnais ably on Beet-root Distillery. Professor Voelcker estimates the value of liquid manure, and Mr. Peter Love advocates a plan of his own for applying it. Dr. Richardson, by permission of the North-Eastern Railway, details his experiments on the preservation of timber; Mr. Russell writes elaborately on the Influence of Climate on Cultivation; and Mr. Thomas Crisp shows how profitably lupine may be grown as food for sheep. Of course many of these papers will require some more careful consideration hereafter. We can only now call over the contents of a Number, that, however interesting and serviceable in its individual components, is certainly not up to the acknowledged standard of the Society's *Journal*. It is hard to see what we have been waiting so long for.

THE WILD FOWLER: A TREATISE ON ANCIENT AND MODERN WILD FOWLING, HISTORICAL AND PRACTICAL; By HENRY COLEMAN FOLKARD, Esq., Barrister-at-Law (Piper, Stephenson, and Spence, Paternoster-row).—Dr. Watts, in his masterly treatise on logic, says: "1st. Let your method be plain and familiar, beginning with things best known, and proceeding, by regular and easy steps, to your conclusion; neither hurrying from one thing to another, nor crowding too many thoughts together. 2nd. Let your method be distinct, avoid everything foreign and heterogeneous. 3rd. Include the whole of your subject, without superfluity. Express yourself clearly, and explain when necessary, but not otherwise. There is a happy medium to be observed in our method," continues the scholar, "so that the brevity may not render the sense obscure, nor the argument feeble, nor our knowledge merely superficial; and, on the other hand, that the fulness and copiousness of method may not waste the time, or fill the mind with trifles and impertinencies." Now applicable as the above is to the art of reasoning, it is equally so to the art of writing well, and Mr. Folkard has proved himself, in the work before us, pre-eminently great in the above qualities. "The Wild Fowler" cannot be called strictly a sporting volume, for it treats of much more exalted subjects than the mere capture of these aquatic birds. Thus we find, among its interesting details, bibliothecal researches, Egyptian fowling, and natural history of wild-fowl, wild geese (bernicle, bean, and solan), heron, plover, coot, moor-hen, snipe, curlew, dotterel, ruffs and reeves, and other birds; habits of the Greek and Anglo-Saxon fowlers; Russian, Persian, American, Indian, French, and English methods of capturing wild geese. The whole, too, is interspersed with clever anecdotes, practical advice, and sage counsel, that render the volume as useful as it is entertaining. The author writes with great spirit and great power. Following the observation of the surly pedant, Dr. Johnson, "That human experience is the great test of truth," he details facts which have come under his immediate knowledge. His research is profound: his style, always original, varies according to the voluminous subjects upon which he treats—now simple, easy, and distinct, now glowing, elevated, and dignified, avoiding those rocks which so many authors have foundered upon, by rendering themselves unintelligible, through an affectation of curtness or sublimity, whose sentences, with a view to their being pointed, are too short to be explicit, and whose flowing style is rendered ridiculous by obscure and unmeaning figures, which are "great swelling words of vanity." If the first object of writing be information, its first quality is perspicuity to write so as not merely to be understood, but as leaving no danger of being misunderstood. The work before us is beautifully got up, both as to literary matter, type, paper, binding, and illustrations. It contains thirteen most artistic engravings on steel, and five spirited woodcuts, reflecting alike the greatest credit upon the young rising barrister, who, we trust, in due course of time will prove himself as worthy the exalted position that a brother sportsman, the Lord Chief Justice of the Queen's Bench, now holds with such honour to himself; to the artists, Messrs. Armfield, R. Ansdell, Beckwith, A. Cooper, and the author, who furnishes five drawings, a vignette, and, we presume, the woodcuts; to Messrs. Piper, Stephenson, and Spence, for their discernment in publishing this standard work; and last, not least, to the printers, Messrs. Rogerson and Tuxford, for the faultless manner in which the typographical part is executed.—*The Review, September* 10.

COMMERCIAL AND AGRICULTURAL VALUE OF CERTAIN PHOSPHATIC ROCKS OF THE ANGUILLA ISLES IN THE LEEWARD ISLANDS.

By Sir Roderick Impey Murchison, V.P.R.S.,

Director-General of the Geological Survey, and Honorary Member of the Royal Agricultural Society.

(*From the Journal of the Royal Agricultural Society of England.*)

Having long been an Honorary Member of the Royal Agricultural Society of Great Britain, I have often regretted that I have never had it in my power to communicate anything of importance to the British farmer.

I am now, however, enabled to make an announcement which will, I have no doubt, be as acceptable to the readers of the "Agricultural Journal" as it is interesting to the geographer and geologist, whilst it is likely to become very valuable to the merchant and shipowner.

A few weeks ago my eminent friend Sir William Hooker enclosed to me a letter from His Excellency Mr. Hercules Robinson, recently Governor of St. Kitts, in the Leeward Islands, and now appointed Governor of Hong Kong, accompanying a box of specimens of rocks taken from three localities in the Anguilla Isles, lying immediately to the north of St. Kitts, and requesting me to have the specimens analyzed in the laboratory of the School of Mines under my direction.

It appears that the Americans, in the course of the year 1858, quarried away some 30,000 tons of rock, the greater part of an islet called Sombrero, to the north of the Anguillas, and sold the substance in the New York market at prices from £3 10s. to £6 10s. per ton, to the amount of £100,000, for the purpose, it is said, of regenerating the exhausted lands of Virginia. Subsequently the inhabitants of the Anguillas, knowing that some of their northern "keys" or rocky islets were similar in aspect to Sombrero, naturally desired to have these substances analyzed.

The analyses have been made by Mr. Charles Tookey in the laboratory of this establishment, under the direction of Dr. Percy, and are as follows:—

Little Anguilla.—The specimens from this islet do not contain a notable amount of phosphoric acid.

Little Scrub.—This sample contains 1.62 per cent. of phosphoric acid or 3.53 per cent. of phosphate of lime; but certain porous portions selected from the mass gave 25.75 per cent. of phosphoric acid or 56.21 of phosphate of lime. The porous portion of the *Little Scrub* rock contains also nitrogenous organic matter, and a trace of potash.

Blowing Rock.—This sample contains 0.31 per cent. only of phosphoric acid or 0.68 per cent. of phosphate of lime.

The specimens sent home from the Sombrero Rock contain respectively—solid rock, 36.71 per cent. of phosphoric acid or 80.14 of phosphate of lime. The porous portion of the rock yielded 32.37 per cent. of phosphoric acid or 70.67 of phosphate of lime.

Now, although these specimens are much richer than those transmitted from the Anguillas, it is to be recollected that the former were taken from the heart of the rock; the Americans having cleared away all the overlying portions, even to the water's edge. On the other hand, the British specimens were merely gathered from the surface; and it is therefore probable that, when deeply quarried into, some of our "keys" may prove as valuable as the Sombrero Rock.

We have yet to learn to what extent other rocks of the Anguilla Isles may be of as good a quality as those of the "Little Scrub;" but even if it be found that Anguilla, the chief island of the group, which is 20 miles long by 6 miles broad, does not contain any considerable quantity of this peculiar breccia, still the islets lying betwen it and the rock of Sombrero may be of considerable value. For, if substances similar to the breccia of the "Little Scrub"—which has all the external character of a bone breccia—shall be found to occupy several of these islets, the discovery must be considered one of great national importance, in providing our agriculturists, from a British possession, with a plentiful supply of a good substitute for the guano of Peru.

I trust, then, that Her Majesty's Government may deem it expedient to send out a competent geologist, or may direct one of the two geologists now surveying in the West Indies, to explore the "keys" and rocks at Anguilla, and define the extent over which these phophatic substances may be distributed.

Museum of Practical Geology and Government
School of Mines, Jermyn-street, May 30.

FOREST LEAVES, SAWDUST, AND HUMUS.

We consider the value of forest leaves as a manure a fact too well established to need any comment, and can only express surprise that they should be so generally neglected by those who can obtain them with no expense but that of gathering and removing them to a place of deposit, where they can be either used to compost with stable manures, or decomposed sufficiently for application by themselves This last is seldom done, as, when once obtained, most persons prefer to use them in their barn-yards and cattle-sheds where they are useful as an absorbent of the liquid excrements. When they are composted in a heap by themselves it will cause a more immediate decomposition to use ashes, soot, or marl in alternate layers with the leaves, as these substances will cut them up fine, and have an effect to correct any undue amount of acidity, which often occurs in speedy fermentations of this character. But we have never known of an instance where this mode of operation would prove half so valuable as that of using them in the barn-yard with animal excrements.

This method not only preserves all the most important elements of the leaves, but possesses the advantage of improving the quantity of barn-yard manures, without diminishing, in the slightest perceptible degree, their quality, as they retain many liquids and gases which would otherwise be lost, and prevent much unnecessary decomposition.

The value of the leaves of different trees vary very much in quality, as those obtained from oaks and other hard woods are the most valuable, those from pines being the poorest, and, indeed, they are hardly worth preserving, as they contain a large per-centage of acidity, which has to be neutralized by alkali before they can be used.

It will also pay to collect the top formation of wood mould, which is always mixed with moss and old rotten trunks and limbs. These little matters, although small when viewed singly, are of real importance, and will be valuable additions to the compost heap. This decayed vegetable mould contains all the elements of re-production, and it is supplied to the plant in the best of all for its ready assimilation.

Sawdust is the particles of wood which is reduced to fineness by the use of the saw in preparing marketable lumber. It can be obtained in large quantities from saw-mills, where it is usually regarded as a nuisance, and is frequently dumped into the stream as an article of no value. Of late, however, it has been considerably prized for packing ice, which has somewhat enhanced its importance. Most of our inland farmers who burn wood make quite a little pile of it in the course of the year, when all carefully saved, as it always should be, together with the chip dirt which gradually gathers around the wood pile.

The decay of sawdust or woody fibre changes it into what is usually called humus, or vegetable mould. This last term, however, is mostly applied to these decayed substances when they are mixed with earth. Ordinarily, woody fibre is a long time in dissolving itself into humus; but this decomposition is much more easily achieved by an elevated temperature, and the free access of air. Moisture and the application of alkalies also accelerate the decomposition, but acids have the contrary effect, and greatly retard any decay. "For the purpose of fuel, decayed or diseased wood is of little value, for it does not possess the property of burning with flame—a property upon which the advantages of common wood depend. The hydrogen of decayed wood must consequently be supposed to be in the state of water." Humus is increased in value by its contents of ashes, which are considerable; but irrespective of this, its intrinsic value as a manure is very considerable. By its decay it produces carbonic acid and water, which feeds and moistens the soil, and absorbs nitrogen from the air, which is converted into ammonia and nitric acid to fertilize the plant. Again, it increases the warmth, porosity, and friability of the soil; acting on the otherwise insoluble minerals, it renders them soluble, and fits them for immediate food for the plant. Hence, by its various and manifold action, humus possesses no mean quality as a manure. After the application of sawdust to the land, it naturally decomposes, and thus becomes valuable as humus, while before its application it may have been used as an absorbent, in which case its value will be two-fold. For littering stables, hog-styes, hen-houses, and other similar places, it is very useful, as it not only retains much more of the liquid excrements than the straw, but is easier carried about, and takes up less room. Sawdust, when left in heaps, often heats and ferments, which causes an acidity to the whole mass; this should be neutralized by mixing lime or some other alkali with it.—G. T. H. in the *Country Gentleman*.

PRESENTATION TO MR. HENRY AMBLER, OF WATKINSON HALL, HALIFAX.—At the recent show of the Halifax and Calder Vale Agricultural Association, the members presented their vice-president, the well-known Mr. Henry Ambler, with his portrait. In doing this on the part of the meeting, Major Edwardes, the chairman, thus spoke to the merits of their friend and neighbour: "The great event connected with that anniversary of their association was to congratulate their worthy vice-president, Mr. Ambler, on the honourable position in which he was placed. They were met to commemorate the worth and talent of a man who had so largely contributed to the success, to the celebrity, he might add, of the association, by introducing his excellent breed of Shorthorns. He had done more to promote its prosperity than any other member. Mr. Ambler was also a manufacturer, and though he had not neglected his own business, being shrewd enough for that, yet he had found time to occupy his leisure hours in another pursuit with honour to himself and advantage to his neighbours. When they considered the number of prizes he had carried away in the southern district, —not second prizes in silver, but first prizes in gold,—also from almost every county in the south of England; and when, as a romantic friend of his (the chairman) remarked, he had been the first to invade the regions devoted solely to agriculture and cattle breeding, and carry away the trophies which had for many years been appropriated by agriculturists, no manufacturer daring to oppose them, he took his Shorthorns to win these prizes, and gained the laurels which now adorned his brow; thereby raising the credit of the association, and enhancing his own in the same proportion. Such men were an honour to the association. The name of Henry Ambler would ring for years amongst them, and the echoes would resound all over the district; for what part of the district was there that had not been benefited by Mr. Ambler's genius and industry? His "Grand Turk" had done wonders, and Mr. Ambler was himself the Grand Turk of that evening, as he was of the Calder Vale Agricultural Association, and he should always acknowledge him as such. The Association had placed him as their Chairman, in an enviable position, having appointed him as their mouth-piece, to present to his good friend the portrait of himself, to be handed down from generation to generation, as a token of the regard and attachment, the admiration and esteem of his friends the members of the association." Mr. Ambler made an appropriate but brief response. The picture bore the following inscription: "Presented to Henry Ambler, Esq., of Watkinson Hall, by a number of his friends, as a mark of their high regard and esteem for his private worth, in testimony of their warm appreciation of his great zeal in promoting the prosperity of the Halifax and Calder Vale Agricultural Association, and in expression of their admiration of his indomitable perseverance and great skill in raising himself to such an eminent position amongst the foremost breeders of short-horned cattle in this or any country."—August 27th, 1859."

CLEVELAND AGRICULTURAL SOCIETY.

The following is a list of prizes awarded at this show for

HORSES:

Best Cleveland bay brood mare, £7, to Mr. J. Smith, Long Newton; second, £3, to the Guisbro' Alum Company, for Trimmer.

Coaching brood mare, £7, to Mr. T. Wilson, Mount Grace, Northallerton, for Blink Bonny, who often obtained the president's prize of the silver cup; second, £3, to Mr. G. Holmes, Beverley.

Hunting brood mare, £7, to Mr. R. G. Mewburn, Ingleby Barwick, Yarm; second, £3, to Mr. Reed, Stockton.

Draught brood mare, £7, to Mr. J. Turner, Thornton-le-Beans; second, £3, to Mr. T. Upton, Pallathorpe, Tadcaster, for Mettle.

Roadster brood mare, £5, to Mr. H. R. W. Hart, Dunnington Lodge, York, for Maid of All Work, being the twelfth prize which this animal has obtained; second, £1, to Mr. J. Emerson, Eastby Hall, Stekesley, for Nancy.

Foal of the Cleveland bay breed, £3, to Mr. J. Wood, Skelton; second, £2, to Mr. J. Robinson, Rudby; third, £1, to Mr. W. Foster, Lealholme, Whitby.

Coaching foal, £3, to Mr. T. J. Peart, Great Ayton; second, £2, to Mr. J. Fletcher, Little Ayton; third, £1, to Mr. J. Robinson, Rudby.

Hunting foal, £3, to Mr. J. F. Ellerby, Nunthorpe; second, £2, to Mr. H. W. Thomas, Pinchinthorpe House; third, £1, to Mr. T. Bainbridge, Marske.

Draught foal, £3, to Mrs. Mary Kitchen, Whorlton; second, £2, to Mr. J. Turner, Thornton-le-Beans; third, £1, to Mr. T. Laing, Lackenby.

Roadster foal, £3, to Mr. J. H. Handyside, Stokesley; second, £2, to Mr. H. R. W. Hart, Dunnington Lodge, York; third, £1, to Mr. T. Eaton, Tockets, Guisbro'.

Two year old Cleveland bay filly, £3, to Mr. T. Ward, Bannial Flat, Whitby.

Yearling Cleveland bay filly, £2, to Mr. J. Sayer, Great Ayton.

Three years old coaching gelding, £4, to Mr. J. Lilburn, Rounton.

Two years old coaching gelding, £3, to Mr. G. Nellist, Thickley, Shildon.

Yearling coaching gelding, £2, to Mr. J. Binks, Newton-le-Willows, Bedale.

Coaching filly not more than three years old, £3, to Mr. W. Mothersill, Brockholme, Northallerton.

Three years old hunting gelding, £4, to Mr. J. Jackson, Tunstal, Catterick.

Two years old hunting gelding, £3, to Mr. G. Carrick, Pinchinthorpe.

Yearling hunting gelding, £2, to Mr. G. Holmes, Beverley.

Three years old hunting filly, £3, to Mr. R. Hymers, Great Ayton, for Ruth.

Two years old hunting filly, £2, to Mr. J. Pressick, Lofthouse.

Yearling hunting filly, £2, to Mr. R. Hymers.

Three years old draught gelding or filly, £4, to Mr. W. Gofton, Pockthorpe, Driffield; second, £1, to Mr. T. Upton, Pallathorpe, Tadcaster, for Drummer.

Two years old draught gelding or filly, £3, to Mr. T. Upton, for Captain.

Roadster, gelding or filly, not more than three years old, £2, to Mr. W. Proude, Bishop Middleham; second, £1, to Mr. J. Atkinson, Belasis.

Pony of any age, not exceeding 13 hands, £2, to Mr. J. Proude, Yearby, for Jessy; second, £1, to Mr. W. Hall, Fleece Hotel, Thirsk.

Extra Stock.—A silver medal was awarded to Mr. H. Wilson, Barnaby, for a bay hunting mare.

SPECIAL PRIZES.

(Offered from a fund supported by private subscription.)

Hunter, mare or gelding, from four to nine years old, warranted sound, £20, to Mr. T. Parrington, Normanby, for King Charming; second, £7, to Mr. G. Holmes, Beverley; third, £3, to Mr. W. Proude, Bishop Middleham.

A silver-mounted hunting whip was awarded to Mr Parrington, the secretary, as the rider who rode his horse over the leaps in the most skilful and sportsman-like manner.

Hackney gelding, from four to nine years old, and warranted sound, £5, to Mr. T. Garbutt, Yarm, for Rugby.

Hackney mare, from four to nine years old, and warranted sound, £5, to Mr. T. Parke, Pickering.

The Society's silver medal to the best animal in the show was awarded to Mr. Parrington, for his horse King Charming.

GREAT ANNUAL SHOW OF TUPS AT KELSO, FOR PREMIUMS AND FOR SALE.

This annual meeting, now so celebrated throughout the whole country, was held on the usual show-ground early in September. To judge from appearances this market is becoming every year of greater importance to breeders, and is more and more resorted to by those in search of superior Leicester rams, as the only place in the kingdom where so great a choice is to be met with.

Show for Premiums.

The business of the day commenced with the competition of sheep for the premiums offered by the Union Agricultural Society, and by the Highland and Agricultural Society of Scotland. We have seen the entries for those premiums more numerous in some of the classes, but we believe the quality of the stock exhibited was fully equal to that of any former years. The judges who acted on the occasion were Mr. Wilson, Edington Mains; Mr. Smith, East Learmouth; and Mr. John Chrisp, Hawkhill, for the Leicesters; and Mr. Henderson, Langleyford; Mr. Clay, Winfield; and Mr. Douglas, Nortonhall, for the Cheviots; who gave in the following awards:—

Union Society's Premiums.

Class I.—Leicester Sheep.

Best Shearling Tup—Mr. Simson, Blainslie, 5*l.*

Best two-shear Tup—1, Lord Polwarth, 3*l.* (His Lordship bought this tup from the flock of Mr. Cockburn, Sisterpath.) 2, Mr. Stark, Mellendean, 2*l.*

Best pen of five Leicester Gimmers or Shearling Ewes—Mr. Roy, of Nenthorn, 3*l.*

Class II.—Cheviot Sheep.

Best two Tups, not above once shorn—Mr. Elliot, Hindhope, 5*l.*

Best Tup, not above thrice shorn—1, Mr. Elliot, 3*l.*; 2, Mr. Elliot, 2*l.*

Best pen of ten Gimmers—Mr. Elliot, 3*l.*

Premiums given by the Highland and Agricultural Society of Scotland to the district comprehending the counties of Berwick and Roxburgh.

Leicester Sheep.

Best Tup belonging to a Proprietor or Factor—Rev. R. W. Bosanquet, Rock, the Society's Silver Medal.

Best Tup of any age—no competition.

Best two Shearling Tups—Mr. Simson, Blainslie, 5*l.*

Best pen of five Ewes, not less than two shear—Mr. Stark, Mellendean, 5*l.*

Best pen of five Gimmers or Shearling Ewes—Mr. Simson, Courthill, 4*l.*

The Sale of Rams.

The great business of the day was the sale of Leicester rams. The number entered for public auction amounted to 1,518—of which 681 were in the ring presided over by Mr. Fairbairn, auctioneer, Kelso; 467 in that presided over by Mr. Donkin, auctioneer, Bywell; and 370 in that of Mr. Embleton, auctioneer, Broomhouse, and Mr. Oliver, auctioneer, Hawick. The sales commenced very soon after nine o'clock, and continued without intermission until the whole were disposed of, and so great was the number of purchasers in attendance, that not a single sheep was taken back unsold. It was the briskest sale we have yet had at this meeting, and prices generally were considerably higher than those of last year, ranging from £3 to £38 a-head; the latter price being reached by one of Lord Polwarth's sheep. When Mr. Fairbairn got through his large lot, the bidders were as prompt as ever; in short, towards the end of the day prices were rather improving, thus showing that great as the number of sheep was it was not equal to the demand. Mr. Fairbairn finished his lot soon after five o'clock, and in a very short time afterwards the show-ground was completely cleared. We may safely affirm that this market for Leicester rams is unequalled in any part of the kingdom, and consequently the attendance of purchasers from all quarters is most numerous; otherwise it would be impossible to dispose of so large a lot. There was a great attendance of company throughout the day. We subjoin the average prices of each lot so far as we have been able to procure them, which will give an idea of the prices obtained:

No. of Tups.	Name.	Average.		
44	Right Hon. Lord Polwarth	£11	4	0
50	Mr. Stark, Mellendean	12	14	8
40	Mr. Thomas, Rutherford	6	0	0
40	Mr. Roy, Nenthorn	5	10	0
8	Mr. Ingram, Copeland	4	1	6
34	Mr. Lynn, Mindrum Mill	4	8	6
6	Mr. Ruddick, Berwick, 1st lot	5	0	10
14	Do., Do., 2d lot	9	17	1½
26	Mr. Hutchinson, Redden	4	5	9¼
22	Mr. Nevins, Marldown	5	17	4½
35	Mr. Laing, Cornhill	4	12	9½
21	Mr. Pinkerton, Ancroft Steads	5	3	9¾
80	Mr. Purves, Linton Burnfoot	8	4	6
50	Mr. Nisbet, of Lambden	6	17	4
52	Mr. Thomson, Mindrum	5	17	9½
36	Mr. Cockburn, Sisterpath	10	12	2
50	Mr. Simpson, Courthill	7	11	8
65	Mr. Robeson, Springwells	6	6	2
90	Trustees of late Mr. Hogarth	4	18	9¼
24	Mr. Wellbank, Keighley	4	7	3½
26	Mr. Wilson, Haymount	5	0	6
20	Mr. Logan, Humehall	4	17	4
14	Mr. Hannam, Kirk Deighton	3	11	5
44	Mr. Roberton, Harpetoun	3	13	0
35	Mr. Oliver, of Lochside	3	13	6
24	Mr. Cunningham, Grahamslaw	4	15	7
15	Mr. Nisbet, Elwick (long wools)	5	3	0
19	Mr. Peake, Craigend (half-bred)	6	6	6
17	Mr. Elliot, Hindhope (Cheviot ewes and gimmers)	2	14	6

The number of tups sold by Mr. Fairbairn was 670, and the average of the whole was £6 1s. 2¾d.

SALE OF MR. BEALE BROWNE'S FLOCK OF COTSWOLDS.

There was a great gathering on the Cotswolds on Tuesday, Sept. 6, on the occasion of the sale of Mr. Beale Browne's celebrated flock of Cotswold sheep. The company assembled at Hampen was a congress of the agriculturists of England. They came from the heavy clays of Essex, the red earths of Northampton, and that great *omnium gatherum* of soils Lincolnshire; from the fertile valleys and wide chalk downs of Wilts, and the garden county of Monmouth; from the great pasture farm of Leicestershire, whose farmers still affect to be *nonpareil;* from the bluff headlands of Pembroke in the west, and from the holms of Northumberland, and as far as the Cheviots in the north. Ireland, America, and Australia also had their representatives there. Never before, perhaps, have the Cotswold sheep held so brilliant an "at home." Lunch preceded the business of the day, and the customers were early in the field, fearing, probably, they might lose some good thing, and many spent the morning in surveying and comparing the stock, and finding those which took their eye. The sheep did not look so well as they might have done, owing to the rain which fell during the morning, but even in their wet coats they were something worth talking about. Great rams, tall enough to look over a hurdle, with backs broad enough to dine upon, and breasts like the bow of a jolly-boat, to which the whole animal bore no bad resemblance in outline; and then they were curled like the darlings of a drawing-room; and indeed we suspect that ere this some of them have been shown on the carpet. Then there was the produce of these patriarchs of the hills, inheriting much of their excellence, as we may judge from the prices which they commanded. The sheep having been disposed of, the auctioneer (Mr. Villar, of Cheltenham) offered a small but fine herd of cattle. The prices obtained were considered on the whole exceedingly good, and averaged the turn over £4 per head for everything sold. The best price given for rams was 18 guineas. Mr. Browne has retained ten of his best white-faced rams, and intends to maintain a flock of white-faced sheep, that is, if an improvement in the health of his family should give him time and opportunity.—*Abridged from the Gloucester Chronicle.*

THE BISCATHORPE RAMS.—The annual letting of the Biscathorpe long-wool rams took place on Thursday the 1st Sept., on which occasion Mr. Kirkham was honoured with the presence—and with the biddings as well—of a much more numerous company of gentlemen interested in the breeding and letting of sheep than, we believe, has ever surrounded him before. The fame of Mr. Kirkham's flock has for some years attracted a great number of strangers from distant parts of the country, but this year not only were almost—if not entirely—all his old patrons present at the letting, but there was also a considerable addition of gentlemen who for the first time saw the splendid flock, or partook of the munificent hospitality of its proprietor. In both respects, it was the general opinion that Biscathorpe on that day surpassed itself; for after having looked upon and handled some of the finest rams, the shearlings especially, that have ever been sent from Biscathorpe, the company, almost two hundred in number, sat down to an entertainment of an equally super-excellent character. The comforts and decorations of the room, and the quantity and quality of the wines and refreshments, were something to be admired and surprised at, as well as to be enjoyed. When three o'clock, the hour for letting, arrived, the company at once proceeded to the auctioneer's stand, which was occupied, as usual, by Mr. D. Briggs. The sale on the whole was an extraordinarily good one, for in about three hours 124 rams were let for the sum of £1835. The 64 shearlings, which were the theme of general admiration for size, symmetry, and covering, fetched 1£886 10s. A shearling almost perfect in every respect was let to Mr. Kirby for £50, and a very superior sheep was secured by Mr. Minta for £36: several more of the shearlings reached £30. But the most animated and vigorous competition took place over a most magnificent two shear sheep, which may have been equalled before for all the sterling qualities required in a ram, but which it would be almost impossible to surpass. If ever a ram came up to the ideal of a rigid sheep breeder's imagination it must have been that ram, for both in proportion and outline it was almost faultless. After a very brisk bidding, it was knocked down to Mr. Casswell, of Laughton, for £80. It would have fetched £100 had not the competition been generously relinquished by Mr. Kirkham sen. This is the seventh year that Mr. Kirkham has held a public letting, the rams having previously been let by private contract. The averages for the last six years have been as follows:—1853, £11 7s.; 1854, £12 8s.; 1855, £13 3s.; 1856, £11 14s.; 1857, £11 17s. 10d.; 1858, £11 9s. 4d. This year the averages were—for shearlings, £15 4s. 8d.; two shear, £15 2s. 4d.; three shear and upwards, £12 16s. 11d., or an average throughout of upwards of £14 4s.

MR. RIGDEN'S SALE AT HOVE.—Friday, Sept. 9, this important sale of Southdown sheep took place at Hove, Mr. Bushby officiating as auctioneer on the occasion. After an excellent luncheon, Mr. Bushby commenced the business of the day, adverting to the eminent success which had attended Mr. Rigden in his efforts to maintain the superiority of the Southdown sheep over all other breeds, which had been evidenced for a number of years at the great national exhibitions, where he had carried off the leading prizes in all the different classes. He was aware that before such an audience as the present any encomiums from him would be quite unnecessary, and he confidently appealed to them to support the enterprise manifested by one of their own body—a tenant farmer. After some other observations, he proceeded to submit the various lots, which realized the following prices:—Full-mouthed ewes: Lot 1, 91s. 6d., Mr. Stenning. Lot 2, 94s. 6d., Mr. Drury. Lot 3, 105s., Mr. Hills. Lot 4, 73s. 6d., Mr. Drury. Lot 5, 52s. 6d., Mr. Dell. Lot 6, 85s., Mr. Hills. Lot 7, 55s., Mr. Selby. Lot 8, 50s., Mr. Hart. Lot 9, 52s. 6d., Mr. Hills. Lot 10, 42s., Mr. Hart. Shearling ewes: Lot 11, 60s., Mr. Wodehouse. Lot 12, 72s. 6d., ditto. Lot 13, 47s. 6d., Mr. Drury. Lot 14, 45s., ditto. Lot 15, 46s., Mr Waters. Lot 16, 42s., Mr. Hall. The ewes, therefore, obtained an average of 58s. 1d. We may add that the flock was in excellent condition, proving the very superior management of the owner during a very trying season. Rams for letting: No. 1, 5 years old, by Windsor Castle, was let to Mr. Hills for 40gs. No. 3, 3 years old, by Son of Favourite, to the Hon. H. Brand, M.P., for 17gs. No. 4, 2 years old, by Young Favourite, for 46gs., to Mr. Hills. No. 5, 2 years old, by Young Favourite, 31gs., to Mr. J. Waters. No. 6, 2 years old, by Young Favourite, 13gs., to Mr. Sharpe. No. 8, 2 years old, by Son of the Duke, 11gs., to Mr. Reid. No. 12, 1 year, by The Duke, 15½gs., to Mr. Treherne. No. 13, 1 year, ditto, 30gs., to Lord Chichester. No. 14, 1 year, by ditto, 26gs., Lord Walsingham. No. 15, 1 year, by Son of Favourite 21gs., to Mr. Drury. No. 19, 1 year, by The Duke, 11gs., to Col. Paine. No. 27, 1 year, by Son of Favourite, 11gs., to Mr. Sharp. Rams for sale: No. 7, 2 years, by Carlisle, 10½gs., to Mr. Brand. No. 20, 1 year, by The Duke, 10½gs., Col. Paine. No. 26, 1 year, by The Duke, 11½gs., to Mr. Carruthers. No. 28, 1 year, by Son of Favourite, 12½ gs., to Mr. Hills. No. 29, 1 year, ditto, 12 gs., to Mr. Tipping, Brasted Park. No. 30, ditto, 11½gs., Mr. Hall, who also purchased 32, at 10½gs.

MR. ADNEY'S SHROPSHIRE SHEEP.—An important sale of pure bred Shropshire sheep took place at Harley, Salop, on Tuesday, Sept. 13, and when we say that upwards of 800 gentlemen partook of a sumptuous luncheon, well supplied with wine and other beverages, it may give some idea of the gathering. Competition was keen, and large prices easily realized. Rams made from 15 to 95 guineas; ewes from 4 to 8 guineas; theaves from 3 to 5 guineas; ram lambs from 8 to 22 guineas; ewe lambs from 2 to 2½ guineas each. Buyers from Ireland, and exporters to Australia, France, and other countries thronged the arena. The sale was conducted in Mr. Preece's usual able manner.

WALSOKEN, NORFOLK.—The long-wool rams the property of Mr. Ollard were let by auction on Wednesday, Sept. 14, by Mr. Cross. The company numbered from sixty to seventy gentlemen from the neighbouring counties, among whom we observed Richard Young, Esq., Mayor of Wisbech, in the chair; K. Viall, Esq., Stoke, Essex; T. Pratt, Esq., Sudbury; T. Payne, Esq., Stoke; — Pratt, Esq., Paston, Peterborough; — Sartoris, Esq., Rushden Hall, Northamptonshire; Messrs. King and Coales, of Long Stanton, Cambridge; Messrs. Spencer, Allett, Bailey, Mattley, Griffin, and D. Grounds, of Eldernell; Mr. Martin, of Littleport; Mr. Kilham, of Tid; Messrs. Marriott and Marsters, of Lynn; and Messrs. Louth, Healey, and Goward, jun., of Wisbech. After a spirited competition, the greater part of the sheep offered were let at prices from £5 10s. to £32 10s., several of the sheep making from £12 to £20. These sheep are now ranked amongst the first of their breed; and Mr. Ollard, after nearly thirty years, has acquired a fame and celebrity hitherto unknown in this neighbourhood.

SALES OF TUPS IN ARGYLLSHIRE.—Mr. Stewart of Coll's annual sale of tups took place at Tomaig, on Wednesday, Sept. 14. About 30 shearlings were disposed of at prices ranging from £9 each and under, and 10 aged tups, some of which realized from £5 to £6, but most of these went for less than that sum. At same time and place, Mr. Donald M'Donald, Arinascavach, &c., &c., disposed of a number of his tups, mostly bred from Mr. Stewart's stock, at excellent prices, one having fetched as high as £20, the others at sums varying £5 and under.—The annual sale of Mr. Robert Steuart's blackfaced tups took place at Drumore, on Thursday the 8th instant, when Mr. Dickson disposed of 80 yearling and 6 aged tups. The yearlings were all bred on the farm of High Lossit. The day was fine and the attendance was large. The highest price realized for a ram was £17 15s., purchased by Mr. Archibald for his Grace the Duke of Hamilton. The next price was £15, bought by Mr. D. M'Donald, Arinascavich. The next price realized was £13 9s., bought by Mr. J. M'Intyre, for Allan, Pollock, Esq. Other rams realized respectively: £11 (a two-year-old), £10 12s., £9, £8 4s., £7 4s., £7 4s., £6 7s., £6—these being the top prices. The other lots sold at various prices down to about £2. A few Leicester tups were disposed of at prices from £4 11s. to £3 each, and a few shot ewe lambs at 10s. 9d. each.

SHROPSHIRE SHEEP.—The last great sale of the season took place at the Flash on Tuesday, Sept. 13. Mr. Preece on this occasion represented several most noted sheep breeders. Upwards of 130 rams and 800 ewes, from the flocks of Messrs. Lee, Pembury, Claridge, Henry Smith, Maddocks, Farmer, Stanier, Evans, Crane, Mansel, Tompkiss, Plimley, John Freece, and other noted breeders, were sold, the rams making upwards of 13 guineas and the ewes 3 guineas each. Purchasers from all parts of the kingdom were present, and pronounced the show of animals unexcelled by any previous collection, either in that or other counties.

DOGDYKE RAM SHOW.—This justly-celebrated flock, belonging to Mr. James Mayfield, was offered to the public on the 8th Sept. The numerous assemblage consisted of eminent breeders, graziers, and the gentry of this and the surrounding counties; and unanimous was the opinion of persons, upon whose judgment we can rely, that a flock characterizing all important essentials it had not been their lot previously to have witnessed. After a bountiful *dejeuner*, served up in first-rate style, and consisting of everything in season, the rams were submitted for competition, and so spirited was the biddings, that several of the young sheep realized from £20 to £56, and many of the old ones from £12 to £52. The average of the shearlings was £12, and that of the two years nearly £9. The day was one of business and of pleasure, and many and fervent were the expressions of gratitude to the aged and hospitable proprietor of the Dogdyke rams.

RAM LETTINGS IN THE EASTERN COUNTIES.—Several important ram lettings and exhibitions have taken place in the eastern district during the last month. At Mr. Bennett's gathering at the Trinity College Farm, Cambridge, the prices obtained ranged from £6 6s. to £21; but the company was scarcely numerous enough. At Mr. P. J. Sharman's meeting at the Park Farm, Scarning, Norfolk, there was some spirited bidding, 45 lambs being let at an average of £4 5s. 6d. each, while the highest price realized was £9 15s.; 25 shearlings realized an average of £8 8s.; and the two-shears and the remainder of the shearlings £6 6s. each. Two of the shearlings were hired for Lord Stafford at 30 guineas.

FRAUDS IN THE FOREIGN CORN TRADE.

[FROM A CORRESPONDENT.]

The frauds practised by shippers of corn at various ports on the continent are now of such magnitude as to demand that the various associations in Great Britain connected with the trade should adopt an immediate and effective remedy. The facts are generally of this colour: A shipping firm at a continental port send samples to one in England, with, amongst other conditions, one, that the buyer shall pay for cargo before he sees it, as also that the bulk shall be equal to sample. On arrival the bulk is not equal but inferior to sample; and the writer knows of one firm who has in consequence of this shortcoming by a Nantes house (which port is becoming notorious for such practices) claimed £1,200 from them. He has only one remedy in England—to attach any monies the foreign house may have in the charge of English firms. This can seldom be done, consequently the buyers are (if the sellers prove obstinate or dishonest) obliged to resort to the courts of law at the port of shipment. Such is often a disagreeable alternative, as the following will show—the facts are well known in Liverpool. A firm there received in the spring of 1858 a sample; and a purchase was concluded with a firm at Nantes with the distinct understanding that the bulk was to be equal to sample. The vessel arrives, lands her cargo, and, fortunately for the buyer is received by the Mersey dock and harbour board officials.

During discharge, the buyers, finding the cargo to be inferior to representation—say, about 30 per cent.—instruct the dock officials to retain it, so that the reader will see it could not be tampered with by the consignee. The usual affidavits and declarations were made; the shippers scouted them, and still do so, notwithstanding the tribunal of commerce at the shipping port decreed that the English buyers were entitled to relief, and the superior court at Rennes confirmed this decision, and directed the tribunal to say to what extent of relief the English buyers are entitled. The vessel arrived in March, 1858, proceedings were commenced in June, and they are not yet closed, and the goods are unsold. So much for foreign law courts. It is the plain duty of the various corn exchange associations at our several ports to immediately tackle these foreign firms.

THE VIEW TAKEN BY THE SHIPPING INTEREST OF THE SUPPLY, DEMAND, PRICES, &c., IN THE CORN TRADE FOR 1859-60.

Of late years it has become, so to speak, the fashion for the English growers to contend that they have produced very little wheat, even upon the best soils, and that the stocks of old grain at this particular period are nearly exhausted. This is, we find, the cry this season; but a very little inquiry into the truth of statements published evidently to suit the views of interested parties has convinced us that agricultural authorities are much at sea in a matter of truly national importance. For who, we ask, is not interested in the produce of the soil? The large consumers are interested in abundance and a low price. The carrying trade of the country is interested to an extent which exceeds, by comparison, most former periods of our history; and the foreign producers naturally look to England as an outlet—and that, too, a ready-money one—for their surplus produce. Our object on the present occasion is not to distort particular views, but to offer such practical observations as will be found essentially useful to the general community. First, as regards the crop of wheat in England. Owing to the heavy storms which prevailed in July, a portion of it has been secured in comparatively poor condition. Smutty and sprouted wheats are to be met with in some quarters, but our firm impression is that the total produce is quite equal to 1858 as to quantity. Again, the bulk of straw grown this year is considerably in excess of most former periods. It follows, therefore, that, with the exception of quality, the yield of wheat is a full average one. This observation extends not to any particular county, but to the whole of England. Our advices from Scotland are to the effect that the growth of wheat is turning out well, but certainly not in excess of former seasons; whilst from Ireland we learn that the produce is quite equal to 1858. Having thus shown that the new wheats are turning out large as to quantity, the question remaining to be solved is—what amount of produce will it be necessary to import from abroad during the remainder of the year to meet consumption? This is, perhaps, the most important feature in the trade as regards the shipping interest. Before we can arrive at a correct estimate, we must first consider the supply of old wheat in stack in this country. Although not a few of our farmers contended last year that the yield was a very moderate one, it is ascertained that the quantity now on hand is, perhaps, the largest ever known in the last week in August. Indeed we may safely calculate it at fully three million quarters. This excess in the supply, coupled with a fair harvest this year, seems to indicate comparatively low prices for several months. Here, however, another most important question presents itself, viz., what amount of foreign wheat and flour has been imported since the 1st of January? and further, what is the state of our warehouses, both in London and at the outports? From official returns just issued, we find that, during the first seven months of the present year, the arrivals of foreign and colonial wheat have amounted to 2,580,681 qrs., of flour to 2,623,091 cwt., against 2,746,442 qrs. and 2,792,455 cwt. respectively in the corresponding period of last year. It follows, therefore, that we are still importing extensively, notwithstanding that a considerable fall has taken place in prices during the last three months. In order, however, to illustrate the matter more clearly as regards supply from abroad, we insert the following statistics of importations from 1853:—

IMPORTS IN THE FIRST SEVEN MONTHS.

	Wheat. Qrs.	Flour. Cwts.
1853	5,539,009	2,956,629
1854	5,201,842	3,247,208
1855	3,569,155	1,144,898
1856	4,064,903	2,378,181
1857	1,574,047	1,172,748
1858	2,746,442	2,792,455

From the above it will be seen that the carrying trade has not suffered from want of grain freights; but, owing to the rapid falling off in the outflow of breadstuffs from the United States, and some other quarters, the foreign shipowners have brought more food to this country than in any former period. This, we think, will be evident on reference to the annexed figures, showing the countries from whence we have drawn wheat and flour—our two staple articles—in the seven months ending July 31, current year, compared with 1858 and 1857:

WHEAT.

From	1857. Qrs.	1858. Qrs.	1859. Qrs.
Russia................	178,953	242,102	313,651
Prussia	415,783	486,901	375,764
Denmark..............	162,201	193,592	139,656
Mecklenburg	93,569	81,375	93,731
Hanse Towns..........	124,613	143,728	43,529
France................	4,943	488,958	1,029,788
Turkey, Wallachia, and Moldavia	18,733	120,780	43,341
Egypt.................	142,406	311,275	342,631
United States..........	325,637	392,281	3,228
Other countries	107,209	285,450	192,362
Total	1,574,047	2,746,442	2,580,681

WHEAT MEAL AND FLOUR.

From	1857. Cwts.	1858. Cwts.	1859. Cwts.
Hanse Towns........	75,397	94,705	135,290
France..............	124,397	1,73,031	2,409,087
Spain	9,181	364	5,475
United States........	923,439	1,338,792	24,863
Other countries	40,334	185,563	48,376
Total	1,172,748	2,792,455	2,623,091

This statement shows that France has this year forwarded over *one million quarters of wheat,* and not less than 2,409,087 cwt. of flour, while the total imports of wheat from the United States have been only 3,228 quarters, of flour 24,863 cwt., against 1,338,792 cwt. in 1858, and 923,439 in 1857. The bulk of the supplies of French produce have come to hand in foreign bottoms, so that the English Shipping interest has suffered materially from a deficient harvest in the States in 1858. What, then, is the amount of all kinds of breadstuffs imported into this country and consumed in a given number of years? To solve this question, we insert the total arrivals into the United Kingdom during the past six years:

GRAIN, FLOUR, AND MEAL OF ALL KINDS IMPORTED.

	Qrs.
1853	10,173,135
1854	7,909,544
1855	6,278,313
1856	9,339,425
1857	9,169,180
1858	13,168,261

Taking the average at ten million quarters, we perceive that we have already imported at that rate, and it is possible that we shall continue to do so until the end of the year; so that, in point of fact, there is nothing like scarcity to be apprehended, and there is nothing in the present state of the trade to induce large speculative operations. Nevertheless, the current of events will require to be carefully watched. Our own crop of wheat, as we have already observed, is a good one as to quantity; but we find that in France the yield is considerably under last season. In the United States, too, the produce, though good, does not lead us to suppose that heavy shipments will be made to England, unless, indeed, our prices should advance considerably beyond their present level. Throughout Germany the crops are represented as a fair average, and in Russia they are turning out well. In the Italian States, as well as in Spain, Portugal, Turkey, and Algeria, including Wallachia and Moldavia, the yield is falling short of previous expectations. Still, bearing in mind that wheat is grown for export purposes, the general impression is that our importations will be equal to our necessities. We have stated that fully three million quarters of English wheat, the produce of 1858, are still in stack; but against this large quantity we must place very moderate supplies of foreign grain in our warehouses. For some time past, millers have imported freely on their own account, so that a heavy accumulation of stock has been prevented. The large increase in the duties on grain and flour in France, both as respects imports and exports, in other words, the return to the principles of "protection to agriculture"—has lately not only deprived us of a large quantity of food that would have reached us under the fixed-duty system, but it has almost ruined the milling trade in the northern departments, whence we have been accustomed to draw largely, and has completely cleared the warehouses of foreign flour; consequently, consumption now almost wholly depends upon English produce.

We come lastly to the question of supply, as respects spring corn—viz., barley, oats, beans, and peas. Throughout Europe—including, of course, the United Kingdom—there are no serious complaints in reference to the yield. We may, therefore, look forward to average arrivals from all quarters, but no increase of stock, since it is well known that consumption here is chiefly met by foreign producers.

The present average price of wheat is 44s. 1d. Since the 1st of January it has averaged 47s. 1d. per qr., and last year, at this time, it was 42s. 6d. In the nine years ending in 1857, the average was 54s. 5d. per qr.; hence we have now a low value for the article. Barley is officially returned at 31s. 1d., against 34s. 6d. in 1858; oats, at 25s. 5d., against 27s. 10d.; rye, at 30s. 8d., against 34s.; beans at 44s. 6d. against 47s. 8d.; and peas at 37s. 8d. against 43s. 8d. per qr. These are moderately low figures, and, at present, we see no reason to anticipate any important changes in them for some time to come.—*Mitchell's Shipping Gazette.*

CALENDAR OF AGRICULTURE.

This is the busy month with sowing wheat. Seed-furrow the land as quickly as possible; sow as soon as ploughed; have the seed already dressed and measured; steep it in stale urine or salt-water, and dry it with hot lime for the drill machine or sowing by hand; cover by harrowing, and open the water-furrows of every day's work.

Dig potatoes by fork, and secure the crop in long piles thatched with straw and turf-earth. Secure beet, carrots, and parsnips, in a similar way. Remove Swedish turnips from lands to be sown with wheat; plough the land with one furrow, and sow immediately. Give the tops of Swedish turnips and of beetroot to cattle and sheep, moderately at one time, to prevent choking. Put gates and fences in repair, and shut-up the sown fields for the winter.

Prepare, by fallowing, the lands, or some portion of them, to be planted with early green crops the next spring. Plant potatoes with farmyard dung on the prepared ground: drill widely and deeply to protect the sets from frost.

Put the rams to ewes—one to fifty, and place each lot in a separate field. Give turnip-tops and beet to the ewes, which will much promote the salacity. All aged, unsightly, misthriven, and ill-shaped animals, and the ewes that missed lambing last year, are neglected for the purpose of breeding, and the place supplied with the same numbers drawn from the ewe-lambs that are now eighteen months old. Much care and discrimination must be exercised in assorting qualities for the purpose of propagation. Mark the rams on the brisket with red paint, or black pigment, which will mark the ewes on the rump, and enable the shepherd to put marks on the ewes regularly, as they are impregnated. This mark being affixed every fortnight, will be found very useful in housing the ewes for lambing in the spring, and in preventing any lambs being dropped unknown and unseen. Ewes must be got into good condition for the tupping season.

Sheep are smeared with some liquid ointment during this month to kill vermin, and to prevent rubbing and tearing of the fleece by reason of an itchy skin. Tobacco liquor is much used, with a small quantity of spirit of tar. The most approved mode now dips the animal in Biggs' Composition, dissolved in water, immersing the sheep for a few minutes, and then drying them on bare, clean ground. It kills all vermin, and very much promotes the growth of the wool.

The lambs will require the assistance of artificial food at the end of this month, as the grass of pastures will begin to fail. On dry lands confine the animals on spaces of the crop of turnips, divided by hurdles or by stake-nets, and give fresh spaces as the others are finished. On wet, poachy lands it may be better to cart the turnips daily to dry grass or stubble field, and cut off the roots on the field where they grow. Those intended to be fattened will require turnips in a similar way.

The bullocks that are foremost in condition must be tied in stalls singly, or placed in yards two or four together, and amply supplied with turnips, with the tops and roots cut away. Give the roots and tops to young cattle and to the flocks of store sheep. The young cattle are placed in yards, six or eight together, and regularly supplied with food, and well littered.

Feed milch cows with cabbages and the tops of turnips, and beetroot: give hay and straw in chaff, or steam the chaff and roots in mixture. Juicy food is indispensable for the secretion of milk.

Begin to fatten hogs for bacon. Use steamed food of meals and roots mixed, and finish with hard grains.

Sow winter vetches for the early spring crop, and in the succession of that most valuable plant.

Get the manure-pit in readiness; fill it with earthy and vegetable matters, in order to absorb the urinary liquids; and make clean all the culverts that lead from the cattle-yards to the tank. The absorption of liquids by earthy matters is the best use of urinary fæces, after all that has been written and spoken on the subject. Tanks should be roofed over, as darkness promotes putrefaction.

CALENDAR OF GARDENING.

Plant peas and beans, with the chance of an early crop. Transplant and sow hardy lettuce according to the directions before given.

Cauliflowers in frames are to have full air in dry weather, and at the end of the month remove the best plants to beds or warm borders, to be covered by hand lights: place three or four in a spot, making the earth firm about the roots and stems. Cover, till growth be established, then give all the air possible in the weather.

Plant hearting cabbages and colewort. Hoe and earth broccoli, cabbages, borecole, and Brussels' sprouts. Thin-out winter spinach, and make the ground clean. Tie up endive for bleaching. Cast over the decayed stems of mint, balm, thyme, and other sweet and aromatic herbs; hoe the ground, and, if needful, add a little nice fresh earth to the spaces. Plant slips of the pot-herbs, and divide mint.

Now, at the close, dress the asparagus beds, casting over the haulm, and removing it. If seed be wanted, select some of the best; but clear the beds of it, and then rake off and remove every weed, so that the crown of the plants be rather exposed than deeply covered: all enrichment must be made just before growth. Clear seakale and rhubarb beds in the same manner. Commence to excite asparagus in frames, and seakale also.

Trench, ridge, and prepare land.

Pleasure Grounds: To remove litter, and to attend to neatness everywhere, are the early essentials.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

The weather having been somewhat favourable for out-door farm labours, nearly or quite the whole of the crops of grain have now been secured in the United Kingdom. Considering the scarcity of labour in many districts, the result of the harvest thus far is satisfactory. In our last month's report we intimated that as much wheat had been grown this year as in 1858, and, further, that the general quality and condition of the samples were various, and comparatively inferior. Such is our opinion still, and the accounts at hand from nearly every county in England continue to confirm this impression. Here, however, we may observe that the new wheats do not weigh well, the difference in them, compared with last season, being from 3 lbs. to 4 lbs. per bushel: hence they will yield so much less flour. Of course there are exceptions, since we have seen some very fine wheats, both red and white, disposed of, fully equal in quality to 1857, in which season, it will be recollected, some unusually fine wheats were grown, especially in Essex and Kent. But taking a deficiency as the basis of our calculation, we may consider the effect which it is likely to have upon prices. That there is abundant room for an upward movement in the quotations, considering that scarcely any foreign flour is now competing with home-grown wheat, and that our granaries are by no means heavily supplied with the unmanufactured article from abroad, is evident; but against a falling off in the growth this year we have to place a large supply of old English wheat in stock. This supply will, of course, influence the. millers' operations, and any increase in the importations of flour from the United States towards the end of the year, will no doubt throw a large quantity of home-grown wheat out of steady consumption. We imagine, therefore, that though fine qualities will keep up their value without difficulty, there is no prospect of any important movement in the quotations for some time.

The quantity of fine barley produced this season is very small, hence malting samples have sold briskly, at comparatively high rates. The growth of barley is large, and we may therefore look forward to low prices for all except good and fine samples. The barley harvest in Scotland has turned out very productive as to quantity, and fine in quality. In reference to the yield of oats, we may observe that it is a very moderate one; but that the growth of both beans and peas is considerably in excess of last season.

Throughout the Continent the grain trade has been devoid of animation; nevertheless, very little change has taken place in the general quotations. In the United States, prices have continued to fluctuate; but at present they are too high to admit of profitable shipments to this country, notwithstanding that the result of the harvest generally is represented as very favourable.

The great abundance of the hay crop, both meadow and clover, has produced considerable inactivity in the demand, and a decline in the quotations. Straw, too, from its great abundance, has ruled lower in price. Although we hear of numerous individual losses by disease, the crop of potatoes is turning out much larger, and of better quality, than was at one time anticipated. Judging from the numerous samples which have come under our immediate notice, and the generally improved tone of the advices from most parts of England, we are led to conclude that the crop will prove quite equal to last season. In Ireland, the growth is represented as an average one; and in Scotland, as far superior to many former seasons. The prices paid in the metropolitan market have ranged from 50s. to 110s. per ton.

Most of our manufacturers are well stocked with colonial wool, yet English qualities have commanded more attention, and prices have advanced fully ½d. per lb. For export to Belgium a fair amount of business has been transacted, and the home growers seem indisposed to sell even at present rates. The clip has turned out a large one; yet, owing to the activity in trade, the whole will be easily worked up.

The growth of hops is again heavy, and it is understood that the duty will amount to fully £285,000. This large duty has checked the demand for all except the finest samples, which for the most part have changed hands at fair quotations, viz., from £4 10s. to £6 per cwt. There is still a large supply of yearlings and old hops on offer, and for which there is very little demand.

The heavy, or beet and turnip, crops are turning out well, although in some counties there is a larger failure of the plants than usual. The weight per acre is expected to be quite equal to last season.

In Ireland and Scotland there has been a fair, but by no means active, inquiry for fine wheat and barley, at very full prices. Other produce, however, has changed hands slowly, and the quotations have had a drooping tendency. The shipments from Scotland have rather increased.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Most of the leading markets held during the month have been well supplied with each kind of stock, as regards numbers; but the general quality of the supplies of both beasts and sheep has been very moderate, and it appears to be a pretty general impression that no important improvement will take place in it during the current month. It will have been seen that a wide margin exists between the value of the best and the most inferior breeds. That difference, however, has not increased amongst the foreign stock, in the general condition of which a decided improvement has taken place during the present year; indeed, very few sheep are now imported otherwise than in a fat state. The present stringent regulations at the Customs have induced great caution on the part of shippers abroad, and the result is, that foreign stock now reaches us in a much more even condition than for some years past. Most of the sheep from Holland show unmistakable signs of crossing with our best breeds, and, of late, numerous Hampshire and Gloucester Down rams have been purchased here by foreign breeders. Whether crossing with such sheep will be advantageous remains to be seen; but our impression is, that the produce will turn out too fat for general consumption in this country. From our returns it will be seen that the importations have continued on an extensive scale, both as regards beasts and sheep. To some extent they have had a decided influence upon prices, which, however, have ruled tolerably high; and had the importations exhibited any serious falling off, the quotations in London, from the moderate nature of our home supplies, must have advanced considerably, even though the dead markets have come into active competition with the live trade.

The health of the stock generally has continued good, and there have been very few losses from disease in any of our grazing districts. From abroad, reports state that large supplies of both beasts and sheep are on hand for export purposes.

As regards the future course of the trade, it is tolerably clear to us that the value of really prime animals will rule high, since we must bear in mind that their numbers are comparatively small, and that consumption will be large for a considerable period. On the other hand, however, we must not presume that the quotations will be much, if anything, in advance of those now current, because, from the great abundance of keep, not only in England, but likewise in Ireland and Scotland, we may anticipate a greater production of good and useful stock. An increase in the weights of the breeds will, of course, tend to check any important upward movement in the currencies; besides, it may be reasonably inferred, that it will be more advantageous to keep the stock longer upon the land than to sell it off in a half-fat state. It will, therefore, be necessary on the part of the graziers to guard against too high a value for store animals.

Ireland still continues to furnish the London market with large supplies of really prime beasts and sheep. The supply of the former, received since we last wrote, has amounted to 2,500; of the latter, to 4,000 head. For the time of year, these are large arrivals—a proof that the prices realized here are remunerative to the Irish graziers.

There is an important matter now in operation, which cannot fail to have some influence upon the value of live stock in this country; we allude to the enormous amount of speculation going on in tallow, both here and at St. Petersburgh. This speculation has led to an advance in the value of rough fat to 3s. 1½d. per 8 lbs., and to a rise in the price of tallow to 58s. 3d. per cwt. on the spot. Instead of shipping tallow on arrival at St. Petersburgh, the Russian speculators have warehoused some 20,000 casks; in other words, they have held them back for next season; consequently, our importations will fall short of previous expectations. The feeling in London is, that tallow will advance to 70s. per cwt. In that case, fat will be much dearer than it now is, and the value of live stock will hardly recede under this state of things.

The following figures exhibit the importations of foreign stock into London in the course of the month:—

Beasts	6,966	head.
Sheep	37,783	,,
Lambs	1,358	,,
Calves	1,744	,,
Pigs	1,895	,,

Comparison of Imports.

Sept.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1854	7,805	26,230	748	1,894	2,281
1855	7,161	22,744	613	1,646	2,266
1856	7,084	20,605	3,000	2,772	1,559
1857	7,346	24,090	198	1,953	2,007
1858	5,999	25,488	717	2,735	2,472

The annexed return shows the total supplies of stock exhibited in the Metropolitan market:—

Beasts	24,560	head.
Cows	514	,,
Sheep and lambs	145,430	,,
Calves	1,891	,,
Pigs	2,771	,,

COMPARISON OF SUPPLIES.

Sept.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1854	24,796	542	174,171	2,760	3,465
1855	24,667	540	152,120	2,477	3,921
1856	24,002	485	132,014	2,452	2,800
1857	25,734	532	127,715	2,220	2,585
1858	27,446	533	131,150	3,210	4,281

The arrivals of beasts from Lincolnshire, Leicestershire, and Northamptonshire, last month, amounted to 10,400 shorthorns and crosses; from other parts of England, 3,400 of various breeds; from Scotland, 437 Scots and crosses; and from Ireland, 2,500 oxen and heifers.

Beef has sold at from 2s. 8d. to 4s. 10d., mutton 2s. 10d. to 5s. 2d., veal 3s. 4d. to 4s. 8d., pork 3s. 6d. to 4s. 6d. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Sept., 1858.					Sept., 1857.				
	s.	d.		s.	d.	s.	d.		d.	d.
Beef, from	2	10	to	5	0	3	2	to	5	0
Mutton	3	0		5	0	3	4		5	6
Veal	3	8		5	0	3	4		5	2
Pork	3	0		4	6	4	0		5	2
	Sept., 1856.					Sept., 1855.				
	s.	d.		s.	d.	s.	d.		s.	d.
Beef, from	3	0	to	4	10	3	4	to	5	0
Mutton	3	8		5	2	3	4		5	0
Veal	3	8		4	10	3	10		5	2
Pork	3	6		4	8	3	6		4	6

Rather large supplies of both English and Scotch-killed meat have been on offer in Newgate and Leadenhall markets. Very prime beef and mutton have sold steadily, at full quotations; otherwise the trade has ruled heavy. Beef has sold at from 2s. 8d. to 4s. 4d.; mutton, 3s. to 4s. 6d.; veal, 3s. 4d. to 4s. 6d.; pork, 3s. 6d. to 4s. 10d. per 8lbs. by the carcase.

MID-KENT.

We are now in the midst of our hop picking, and all other works are suspended, or nearly so, by all growers, to give place to this all-important work. Hitherto the picking has progressed favourably, and the quantity obtained quite equal to what was expected—in fact, more in many instances, occasioning a rise in the estimation of the duty. The market accounts are various, nothing like a steady settled trade being yet arrived at, and the growers are perhaps pressing them too fast in. The samples generally may be esteemed good, but we hear of some mould about. The picking being all performed piece work, is paid for in most places in this neighbourhood at the rate of from eight to ten bushels to the shilling; and from 65 to 75 or 80 of such bushels make a cwt. of dried hops. It is also proper to observe that many of our kop-kilns have undergone great alteration in the drying, or rather heating, apparatus since last year: the introduction of a patent by Mr. Collins having promised great improvements, many kilns have been altered to that system: there is a difference of opinion of the result, and some growers have reverted to the oldest of all modes—the cockle—again, but time will test their respective merits. The hop gardens in general look pretty, and would well repay a visit by any one who has not seen such things, as a healthy hop plant in full bearing is certainly the most graceful plant I know of; and the gardens being now alive with people, the artist or painter might obtain many good ideas from the heterogeneous collection of workers. The beginning of the picking was in fine dry weather, but latterly it has been showery; but on the whole rain was much wished for; our grass fields were almost burnt up, and turnips made no progress, while there was a universal scarcity of water everywhere, streams being very low, and many wells (heretofore never known to fail) are now dry; every available drop of water is therefore duly prised, and there are few who regret the discomforts the rain has created in the hop gardens. Nevertheless, with all the dry weather, the sheep have done tolerably well this summer, but cattle have made little progress, and I never knew our milch cows look worse at this season than they do now. The potato crop has turned out very badly; not that many are diseased, but they are so exceedingly small. The disease attacked the haulm in June, when they were only half grown, but dry weather setting in, it did not affect the tuber further than arresting its growth, and many crops have not grown since.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ABERYSTWITH FAIR was well attended, both by buyers and others. There was a large collection of stock exhibited of various descriptions; the show of horses large, but rather of an inferior character; cows and calves were numerous, and realized good prices; several mountain ponies were disposed of at fair prices.

ABINGDON FAIR was well attended. All descriptions of cattle, whether of horses or cows, were held for more money, in consequence of the great abundance of keep; this, to a certain extent, checked trade, but many first-rate horses, colts, and cows changed hands at full prices, particularly down calving heifers and cows of first-rate quality. There were not quite so many sheep penned as usual at this fair, but the paucity in numbers was made up in quality, and best pens of ewes, sheep, and lambs quickly changed hands at remunerating prices. Some first-class half-bred lambs were on offer at 35s. to 38s. per head, while "young toothed" breeding ewes realized over 48s. per head; in fact, according to quality, they were quite as high in figure as at the late Wilton sheep fair, when best lots of ewes fetched 50s., while inferior descriptions of "poor stale-toothed" ewes or weakly backward lambs, were hard to dispose of at any price.

BARNET CATTLE AND HORSE FAIR.—This great and important mart was held on Monday, Tuesday, and Wednesday, the 5th, 6th, and 7th of September, and it proved the largest and most successful that has been known for many years. If we required proof of the flourishing condition of the British farmers, we would look to such facts as the immense show of animals of all classes and conditions that arrived at this gathering, and the comparatively small number that remained unsold at the close of the fair on Wednesday. *Ex nil, nihil fit* is an old and very true adage; but the high prices at which the cattle changed hands at Barnet fair, and the large number that was disposed of, proves that there at least the proverb must be held in abeyance. Great must be the confidence of the graziers in the future demand for and price of butchers' meat, to justify the rates at which they made their purchases of lean or half-fat cattle. We devoutly believe, however, that their confidence is well founded, and that whatever may be the price of cereal produce, the increasing demand for animal food will ensure them a fair remuneration for their outlay. But to business. For some days previous to the 5th, droves of cattle of all descriptions kept incessantly pouring into the pastures and fields round Barnet. And there being plenty of aftermath, they had a good opportunity of refreshing themselves and recovering from the effects of the drift. A large proportion were of the Hereford and Devon races; but Wales, Scotland, Ireland, and the English counties were well and numerously represented, with the exception of the shorthorns, of which the show was small. The condition of by far the greatest part was excellent, and the drovers came upon the ground in high spirits, and large views as to prices, doubtless under a knowledge that the town was well filled with jolly farmers and graziers, who decidedly did not come there with empty pockets as mere spectators, but with a keen eye to the main chance, and a heavy purse to secure it. The fair commenced at eight o'clock on MONDAY morning, and after a little skirmishing between buyer and seller, the ball opened with the sale of a prime lot of twenty-four galloway Scots, three-year-old and in high condition, which brought from £19 to £20 per head. This was shortly followed by the sale of 30

Devon steers, which fetched from £12 to £16 each. A short pause succeeded, during which the intending buyers were evidently making their observations, and selecting their bargains; for about 11 o'clock, a simultaneous spirit seemed to pervade the whole body, as if each was afraid his neighbour should pounce upon the lot he had cast a longing eye upon. From that hour to the close of the first day, drove after drove left the fairstead in succession. It was said that of 9,000 Herefords and Devons that had been exhibited, not more than from 100 to 200 were left at the close of the day; but this may possibly be an exaggeration. The following will afford a correct idea of the range of prices of the different classes of stock. Herefords: Well-bred beasts, in high condition, £16 to £18; fresh, useful steers, £11 to £14; stock heifers, £10 to £11. Devons: High-conditioned bullocks, £17 to £20; useful do., for winter fatting, £12 to £15; inferior do., for spring grazing, £9 to £11. Durham shorthorns: The show of these was smaller than we expected; the best-quality beasts brought from £15 to £18; second-class, £12 to £15. Lincolnshire and half-breds, £16 to £20. Sussex: steers, for early fatting, £14 to £16; oxen, for the yoke, £40 per pair. Scotch: Galloway bullocks, in high condition, £18 to £22; good steers, for the spring markets, £14 to £17; Highlanders, £5 to £10 and £12. Irish: These were very numerous, and exhibited a marked improvement both in breed and condition, selling readily at the following prices: Good steers, £11 to £13; do., for early fatting, £15; yearlings, £4 to £6; heifers, £5 to £10. Welsh: Of these also there were several large droves, and an active demand for them sprung up; high-conditioned steers brought £9 to £12; two-year-olds, £8; heifers, £7; cows in-milk, £8 to £11. Milch cows: These were in great request, both for the London trade and the country; choice shorthorn beasts, in full milk, with calf by their side, brought readily £17 to £20; and first-class Yorkshire, £20 to £23; cows in-calf, £14 to £18; country-bred cows, £11 to £15; Alderneys, in full milk, £18 to £20; shorthorn heifers in-calf, £8 to £12; stock do., £7 to £10. Bulls: Yorkshire and shorthorns, three-year-olds £15 to £18, inferior £11 to £14. The sale of these, however, was not very brisk. The result of the first day's sale must have been highly satisfactory to the drovers; for so large a clearance was made, that the fairstead looked rather seedy at the close. On the other hand, the excellent quality and condition of most of the stock exhibited were duly appreciated by the graziers, and they completed their purchases with unusual celerity of decision. Our Welsh cousins displayed their accustomed vivacity, and at the completion of every sale, made the fairstead resound with their joyous shouts. The amount of money that changed hands the first day must have been enormously large. On TUESDAY the sale of the remaining cattle commenced again at an early hour, and a considerable clearance was effected at somewhat lower prices than those of the previous day. The largest portion of the stock left were Welsh and Scotch, with some Hereford and Devon steers. But the day was ostensibly devoted to the horse fair, which was well supplied with excellent stock, from the well-bred palfrey, destined to be graced by the elegant form of some fair equestrian, to the sturdy Belgian which yields a docile obedience to the hoarse command of the brewer's drayman. We give the following list of prices respectively obtained: Light hacks and roadsters from 16 to 24 guineas, well-bred saddle and harness horses 30 to 50 guineas, three to five-year-old ditto for double harness 80 to 100 guineas per pair, good useful farm horses 25 to 35 guineas; large strong ditto, for London use, 35 to 45 guineas; French cart horses 20 to 30 guineas. Welsh ponies, three-year-olds 12 to 16 guineas, two-year-olds 8 to 12 guineas, one-year-olds 5 to 7 guineas. Old garrans and London screws were at a discount of 100 per cent., consequently fetched from 0 to 000. We ought to state that the show of Irish well-bred colts was unusually large; and these spirited animals (which are much stronger and more enduring than their size would warrant a belief of) sold readily at remunerating prices. The show of Welsh ponies was also large, and the constant cheering of the sellers indicated a good business in their ware. WEDNESDAY.—"The end of a feast is better than the beginning of a fast." The fairstead presented a very meagre appearance this morning compared with that of Monday; yet many of the buyers who stood aloof the previous days (doubtless under the expectation of obtaining bargains at the close) found their account in thus postponing their purchases, the drovers being willing to make a further reduction in price, rather than drive their cattle off unsold. Besides which, most of the prime beasts had been already disposed of at very remunerative rates, what were left being chiefly such as were fit only for the straw-yard or next summer's grazing. A few high-conditioned beasts still stood over, and were eventually bought towards the close by the London butchers. At an early hour the whole fairstead was cleared of the unsold cattle, which were driven off for Harlow Bush fair, which commenced on Friday, and an account of which will be found in another column.

BELLINGHAM FAIR.—The stock was in good condition; the lambs were above an average in number; half-breds sold well, similar to last year, but Cheviots were a dull sale, with a part left unsold. The young cattle shown were about an average in numbers; trade dull. Milch cows in great demand from 15*l.* to 21*l.* 10s. There were about 70 foals shown, for which there was a good demand at prices from 8*l.* to 12*l.*

DAVENTRY FAIR.—Trade generally was extremely flat, and the prices of fat stock showed a considerable falling off, good sheep selling for 4s., and fat cow for £1 10s., below the rates obtained at the last fair. Store animals maintained their prices, but only a few changed hands.

CAISTOR FAIR.—The number of sheep, as well as of buyers and sellers, exceeded that of any former year; but owing to the high prices asked for sheep, several lots went out unsold.

CARLISLE FAIR. — The show of white stock was about a third under the number shown at the corresponding market last year. The stock, which was in good condition, was composed of half-bred and Cheviot lambs, with several lots of crosses, and a few lots of Cheviot draft ewes. The total number of all kinds was 10,400, or about 5,000 less than last year. There was an excellent demand for lambs, customers having been seldom so plentiful. The best half-breds were more in request than secondary kinds, and the crosses were early picked up. Prices were 6d. to 1s. a-head up from recent markets. The demand for draft ewes was rather dull, and prices were fully as low as those lately current. At half-past three o'clock there were a few lots of lambs, mostly small half-breds and mid-Cheviots, unsold, and a lot or two of Cheviot ewes. Prices for half-bred lambs may be quoted from 14s. to 22s.; Cheviot lambs, top wedders, 11s. to 13s. 6d.; mid-lambs, 7s. 6d. to 10s.; crosses, 12s. to 16s.; Cheviot ewes, 18s. to 22s. The show of cattle was large, and was composed of Shorthorns, Galloways, Highlanders, and Irish, a large portion being of the latter kind. There was a fair demand for cattle of good quality; but very high prices being asked, the market was rather stiff, especially for Galloways and Highlanders. Though the market was better than anticipated, there was little advance in prices obtained. The prices of the best three-year-old Galloway bullocks ranged from £10 to £12. One-year-old Galloways were selling from £4 10s. to £7; few of this class were unsold. Two-year-old Highlanders, £6 to £7 10s. For a lot of three-year-old Highland Heifers £8 was refused. The best three-year-old shorthorn bullocks were bringing from £12 to £17, ordinary £9 to £10 10s. Irish cattle, three-year-olds, £8 to £10 10s. A large number of Irish beasts would be left unsold. The show of horses was the greatest that has been known for many years, and included a large number of young horses and colts, though a very great proportion of the animals were of an ordinary and inferior description. Good young draught horses were bringing from £35 to £42.

CAERWYS FAIR.—There was an abundant supply of best stock from the surrounding neighbourhood. The supply of sheep was unusually large, for this county. Everything sold early, and realized tip-top prices. Buyers were plentiful.

DUNDEE LATTER FAIR.—There was a good show of fat cattle, for which there was a fair demand. Mr. Thomas Lowe bought the following lots for Mrs. Gibbs, Dundee: 10 cattle from Mr. Bell, Ardownie, for 19*l.* each; 8 fat cattle from Mr. G. Millar, Balcalk, at 19*l.*; 5 do. from Mr. W. Brown, at 17*l.*; 11 cattle from Mr. James Nicoll, Forfar, at 16*l.* Mr. Low, from St. Andrews, bought two lots, one of 15 cattle, from Mr. George Millar, Balcalk, for 15*l.* 17s. 6d., and another of 10, from Mr. David Macdonald, for 17*l.* Sales were dull for lean cattle. There was also a good show of horses, but sales were dull.

DUNSE FAIR.—The show of draught ewes this year was larger than usual, but notwithstanding this the demand was brisk in the early part of the morning, although as the day wore on sales became sluggish. Half-bred ewes from 33s. to 40s. The show of Cheviot ewes was so small that we could not return their prices: while lambs, of which there was a great quantity in the market, and for which the demand was rather dull, good half and three-parts bred fetching from 16s. to 22s. There was a large number of cattle, but few sales were effected.

FALKIRK TRYST.—On Wednesday the show was not what was anticipated, and was principally composed of a few Aberdeen, Moray, and Angus cattle. Few Fifeshires appeared on the ground. The superior kinds suffered a reduction of 2½ per cent., and the inferior kinds 5 per cent., from Tuesday The above descriptions were looked after, but the holders would not give way to meet the wishes of the offerers, and the result was that the lots disposed of were about 7½ per cent. below the prices of Tuesday. There were also a few West Highland stots, and some inferior classes of heifers. The show of Highland beasts was not so numerous as was expected. A lot of old West Highland bullocks, which stood Tuesday's market, were brought into the tryst-ground to-day, and offered at 1*l.* less per head than the sum asked yesterday; but they were not sold. Of horses there was a large turn-out for a second day of the tryst, but sales were stiff. At the close of the market a considerable number of the inferior or third-class of stots were left unsold. It was altogether allowed to be a bad market to the holders.

GLASTONBURY FAIR.—There was a great number of sheep, and many prime sucking colts, many of which soon changed hands at as high as 20 gs.

GLOUCESTER MONTHLY MARKET.—There was a fair supply of both beef and mutton, with a sluggish trade, as former quotations were not complied with. All kinds of meat declined in price about 4d. per stone, and even at this reduction an entire clearance was not effected. Beef, from 6½d. to 7d.; mutton, from 6¾d. to 7¼d. per lb.

HAWICK TUP FAIR.—The following are the highest, lowest, and average prices of most of the lots of rams sold by A. Oliver and Son, in their ring on Tuesday: Leicester Tups.—Mr. Turnbull's Spittal (40), highest, 6*l.* 7s. 6d.; average, 4*l.* 2s. 6d.; lowest, 2*l.* Mr. Dickieson's Magdalene Hall, (30), highest, 4*l.* 10s.; average, 3*l.* 10s. 6d.; lowest, 2*l.* 17s. 6d.—Cheviot Tups: Mr. Elliot's, Hyndhope (72), highest, 42*l.*; average, 5*l.* 4s. 4d.; lowest, 1*l.* 10s. Messrs. Elliot's Myredykes and Singdon (18), highest, 6*l.* 15s.; average, 3*l.* 13s. 4d.; lowest, 1*l.* 12s. 6d. Mr. Mitchell's, Kirkhope (20), highest, 2*l.* 12s. 6d.; average, 1*l.* 18s. 3d.; lowest, 26s.

HOWDEN GREAT HORSE FAIR.—We do not remember having seen a busier fair for many years. Prices were generally high. We have seen more first-rate horses shown, though we hear of one being sold for 185 guineas, and another for which £300 was asked by the owner. The gentlemen visiting the town include the principal London and provincial dealers, and several from the Continent.

ILSLEY FAIR.—There was a good supply of sheep. Although the trade was not so brisk as on the 26th ult., a pretty good clearance was effected at the prices then obtained.

KINGTON FAIR, for the supply of stock and sheep, was far beyond that of any former year. It was indeed remarked to be the largest fair ever remembered here; in fact, the general impression was that the fair was overstocked. The stock generally was of first-rate order, and the attendance of buyers was also good; but, owing to the abundant supply, for a time the demand was somewhat dull. As the morning wore on, however, the demand for both stock and sheep increased and became brisk, with a rise in price; and ere the fair closed a larger number of cattle and sheep than was at first anticipated had changed ownership, and consequently a heavy amount of cash changed hands. Taken in the whole, the fair was a satisfactory one.

LAMBERT'S CASTLE FAIR.—There was a tolerable supply of sheep, which sold—ewes 32s. to 38s., wethers 34s. to 40s., lambs 21s. to 30s., barreners £8 to £10, cows and calves £12 to £15.

LEWES SHEEP FAIR.—The day was one continued series of heavy showers. In despite, however, of the weather, considerable business was done at advanced prices from those of last year. The supply of lambs, as we expected it would be, was short, but the prices ranged for lambs from 22s. to 30s., and for ewes from 28s. to 47s., being about 1s. 6d. per head in advance of last year. The fair altogether was rather tardy, especially at the close, and several lots were left unsold. The following prices were obtained for lambs:—Mr. R. Woodman, 26s., 20s. Mr. Langridge, 23s. 6d. Mr. Waters, Westdean, 24s. 6d. Mr. Saxby, Rottingdean, 22s. Mr. Hudson, Portslade, 22s. Mr. C. Davey, 25s., 22s. 6d. Mr. Park, 20s. Mr. Farncombe, culls, 23s. Mr. Ashby, 30s., 28s. Mr. Pennington, Alfriston, wether, 20s. Mr. Catt, Firle, 24s. 6d. Mr. Pagden, Frogfirle, 26s. Mr. Beard, Rottingdeane, 22s. Mr. Verrall, Swanborough, 23s. Hon. H. Brand, M.P., 21s. Mr. Farncombe, St. Leonards, 25s. Mr. Brown, Patcham, Mr. Morris, Ranscombe, 27s., 19s. Mr. R. Brown, Newhaven, 25s. Mr. Hale, 20s. Mr. Gosden, Eastbourne, 18s. Mr. Springate, Street, 18s. Mr. Thompsett, Hodden, 25s. Mr. Emery, 30s. Mr. G. Newland, Sompting, (ram lambs) 65s. EWES.—Mr. G. Penfold, Wiggenholt, 47s. Mr. Donaldson, manager to the executors of the late Mr. Hugh Penfold, Armington, 46s. 6d., 42s. Mr. Saxby, Rottingdean, 35s. Mr. Thatcher, 33s. Mr. Harrison, 27s. Mr. Madgwick, Balmer, 32s. Mr. Catt, Firle, 32s. Mr. Pagden, Frogfirle, 32s. Mr. Ellis, Exceat, 36s. Mr. Page, Heighton,, 35s. Mr. Penington, 30s. Mr. Gorringe, Kingston, 45s. Mr. Cane, Berwick Court, 40s. The ewes which obtained the top price of the fair, 47s., were from Mr. Penfold's, of Wiggonholt. They are really first-rate, and were very greatly admired. They were bred from the flock of Mr. Thomas Ellman. Mr. Boys had some good rams, as also Mr. Scott Hayward and Mr. Emery. Mr. Thos. Ellman's ewes were the admiration of the fair; four persons bespoke the refusal of them at 60s. each. offering 55s., at which price they were sold to the first bidder. Mr. Thomas Ellman's rams were also highly approved and 15 guineas each were refused.

LINCOLN FAIR.—There was a much larger number of sheep than is usual at this fair, for which the trade was not quite so brisk as had been anticipated. In the beast fair, the show was not large, although it included some very useful cattle. The horse department was quite a busy one for Louth, and at the present rate of improvement it promises to be a very important branch of the September fair. Several young horses changed hands at smart prices. The best descriptions of beasts realized from 7s. 6d. to 7s. 9d per stone, but stores were less saleable at a decline upon late prices. The sheep market was the largest known for many years at this particular period, although the supply consisted principally of lambs and ewes. Lambs realized from 22s. 6d. to 30s., and middling sorts of ewes (culled) from 28s. to 36s., the best descriptions making from 40s. to 42s. There was a very large show of pigs, and still larger bustle, but the real business transacted was only on a small scale. Good stores were in demand, and the smaller sorts were a drag at about late rates. In the horse fair several Irish droves were exhibited, but the principal feature in the fair was the show of foals, which was somewhat large. The trade in this portion of the fair was somewhat slack, although considerable business was done at reduced prices. The best cart foals realized from £12 to £16.

LUTTERWORTH FAIR.—There was fully an average number of store cattle, and the number of sheep and horses (the latter chiefly Irish and Welsh) may be said to have been large. The business transacted was, hower, at steady prices, and comparatively limited in amount.

LYMINGTON FORTNIGHTLY MARKET was well attended, both by dealers and buyers. There was a good display of stock of all kinds, which met a ready sale, to the satisfaction of all parties. The pigs also mustered in great force, and changed hands at remunerating prices.

MOFFAT TUP FAIR.—There was a large show of rams, especially Cheviots, of which there were 837 of all ages. For the best class of Cheviot rams there was a good inquiry; for these sales were readily effected early in the day. For ordinary kinds the demand was rather dull, and the large number shown caused sales to be slow, and a good many were unsold. There was a good demand for bred sheep, but there were few of superior quality, nearly all shown for sale in the pens being of an ordinary description. There was not much inquiry for blackfaced tups, though a few were sold at good prices. Best Cheviot rams, two to three year old, ranged from £8 to £15; ordinary, £3 to £6; one year-olds, 30s. to £5; Cheviot tup lambs from 15s. to 35s.; Leicester tups, £2 to £6 6s.; blackfaced tups, £2 to £8. A good deal of business was done among Cheviot draught ewes at prices in some cases rather below those of last year; prices ranging from 18s. to 24s.

MONIALVE FAIR.—The show of stock was considerable, amounting in all to about 4,000 head, and consisted chiefly of lambs, generally seconds, and a few lots of old ewes, double milled. For everything good in the shape of half-breds and crosses the demand was fair. For Cheviots the inquiry was rather dull, but on the whole the fair was a selling one, and few lots at the close remained unsold. We subjoin a note of some of the sales: Mr. Donaldson sold a lot of half-breds at £1, the highest price we learned; Mr. Jamieson disposed of his half-breds at 18s. 3d.; Mr. Smith sold his at 13s. 9d.; Mr. Wallace, Auchenbrach, bought a lot of Cheviot ewes at 15s.; Mr. M'Millan disposed of his at 16s. 9d.; Mr. Moffat sold his crosses at 12s.; Mr. Good sold his blackfaced ewe lambs at £1 5s., and Mr. Barbour, Bogue, a lot of small blackfaced lambs at 7s. 6d. each. Cheviot ewes may be quoted from 15s. to 18s. each; and we heard of blackfaced ewes being disposed of previous to the fair, at prices ranging from £12 to £16 10s per 21; half-breds from 12s. to £1; Cheviots 7s. to 8s. each.

MOSS OF BALLOCH HORSE MARKET.—There was an extra number of horsedealers present. The supply of horses of all descriptions was the largest that has been witnessed at Balloch for many years. The stock was generally of a very superior character, and consisted chiefly of prime-going animals from two to three years old, some excellent horses a little older, a fair show of roadsters, and a few ponies. The market, however, was an exceedingly dull one; and less business was transacted than on any similar occasion. There was, consequently, a considerable reduction in the prices as compared with former years, the falling off being variously estimated from 10 to 15 per cent. Good draught-horses brought from 30*l.* to 45*l.* For several very superior animals as high as 50*l.* was asked. The rates for second-class horses averaged from 25*l.* to 30*l.*; but it was chiefly in the better sorts that any business was done. Two-year-old colts and fillies brought from 25*l.* to 34*l.*

MUIR OF ORD MARKET, Sept. 21.—The sheep market evinced a brisk demand for good ewes. Wedders not in quite so good demand. Lambs were readily purchased for fair prices. The general impression of the market was very satisfactory; and, with a few exceptions, all the lots shown were disposed of. Among the sales were the following: Mr. Macgregor, Auchnochie, sold Cheviot ewes at 13*l.* per clad score: Mr. Mackenzie, Moy, sold Cheviot ewes at 16*l.* 10s.; Mr. Ross, Castlecraig, a lot of Cheviot ewes at 19*l.* per clad score; Mr. Bankes, of Letterewe, sold Cheviot ewes at 17s. and 13s.; the Strathbran ewes 15s., and lambs 12s.; Lenshader top lambs, 11s. 6d. Mr. Grant, Aldie, Tain, bought Cheviot ewes at 14s., and a lot at 17s.; Mr. Maclennan, Ord, sold blackfaced lambs at 7s.; Mr. Munro, Ord, Invergordon, bought blackfaced wedders at 14s.; Mr. Fauns bought a lot of ewes at 15s. 6d., also a lot at 13s. 6d., and 200 blackfaced lambs at 5s. 6d. The show of stock was good, though somewhat less in number than the corresponding week of last year. Prices for good cattle were well maintained, and the demand was active. Among the sales were these: Mr. Young, Tain, bought a lot of two-year-old cross stots at 12*l.*, and a lot of stirks at 8*l.* 15s. Mr. Alison, Redcastle, bought six-quarter-old cross stots at 9*l.* 10s.; Mr. Mackenzie, Ardross, sold to Mr. Cumming, Fingask, two-year-old cross stots at 13*l.* 10s.

NEWTON ABBOTT FAIR.—A very large number of horses, cattle, and sheep, which were in active demand; and a large trade was done, especially in horses. In fact, so large a fair has not been known for many years past.

NORTHAMPTON FAIR was numerously attended by farmers and graziers, and a good deal of business done. The show of store beasts, though pretty large, was not a good one, the great bulk of the cattle offered being by no means first-rate; nevertheless they sold well and made good prices. The sheep fair was very large, particularly as to barren ewes; good ones made good prices, but old ones were bought lower. Store lambs were in good supply, and good ones fetched high prices. An active demand prevailed generally for beef, at from 4s. to 4s. 6d. per stone. Wether mutton was scarce, and little shown, making 4s. 8d. per stone. The horse fair, as usual, consisted of all descriptions; right good and useful ones, whether hackney or cart kind, difficult to meet with, and such make plenty of money.

PARTNEY FAIR.—Purchasers were not so numerous as had been expected; and business was rather slow, although good prices were obtained. Lambs 25s. to 32s., sheep 44s. to 57s. each. There was a large number of superior fat oxen, which sold at high rates.

READING FAIR.—The supply of cattle was good, but the demand inactive. In the horse show there were some exceedingly well bred and handsome colts, which commanded a ready sale. The prices of stock, &c., were as follows: Well-bred steers for stall-feeding 11*l.* to 14*l.*, stock heifers 8*l.* to 10*l.*, and yearlings 4*l.* to 6*l.*; milch cows (useful shorthorns in full profit), 16*l.* to 18*l.*, home-bred ditto 12*l.* to 14*l.*; cows to calve down 9*l.* to 11*l.*, and in-calf heifers 6*l.* to 9*l.*; dry cows, grass-fatted, 18*l.* to 20*l*, ditto fat heifers 11*l.* to 14*l.*; bulls 11*l.* to 15*l.*; thick-set, short-jointed, young cart horses, for London purposes, 35 to 45 guineas, seasoned ditto, for agricultural work, 24 to 32 guineas; two-year-old cart colts 16 to 24 guineas; good upstanding young horses, for double harness and machine work, 35 to 45 guineas; free-stepping, high-actioned, young cattle, for light harness, 28 to 40 guineas; well-bred colts, for riding, 48 to 55 guineas; yearlings, 12 to 16 guineas, and weaned foals 8*l.* to 10*l.*; brood mares, with colt a-foot, 22 to 32 guineas. Aged hacks and used-up cart horses were without sale.

TEWKESBURY FAIR was unusually well attended by farmers and dealers, and the supply of stock was large. The greater part of the sheep were sold by auction.

TOWYN FAIR was one of the largest ever previously seen here; a great quantity of cattle was offered for sale, but they were generally of inferior quality. The drovers were very numerous, but did not at all feel inclined to give the prices asked by the farmers, consequently but few changed hands. Bullocks from 9*l.* to 10*l.*; two-year-old steers valued 7*l.* to 8*l.*, yearlings from 5*l.* to 6*l.* Milch cows and calves from 10*l.* to 12*l.* Fat bullocks 6½d. to 7d. per lb. The horse mart was sluggish. There was a great quantity of suckers; some very good ones were sold at low figures, from 7*l.* to 7*l.* 10s., and upwards; strong useful cobs were eagerly sought after, but prices ruled high, and very little business transacted. Pigs were scarce; stores fetched from 10s. to 15s., eight to twelve weeks old; there were no fat pigs in the fair. Upon the whole it was a dull fair.

WORCESTER FAIR.—About 6,000 sheep were penned, and the supply of cattle was also good. Beef made from 6½d. to 7d.; good mutton 7d. to 7½d.; prime lamb 8d. per lb. The mutton was all sold. Pork brought about 10s. per score. Of store ewes many went back unsold. The fat sheep were all bought up.

IRISH FAIRS.—BANAGHER: The second day was confined to the sale of horses, of which the supply, particularly of young horses, was much larger than for some years past, all of which were in good demand, but few purchases at high figures were made. Several dealers were in the neighbourhood, and purchased nearly all the high-bred horses before the fair. The chief sales during the day were amongst the "long tails." Prices averaged £18 to £35. But few hunters, which brought from £60 to £125, and good harness horses brought from £30 to £50. The business on the third day was confined to the sale of horned stock. The supply was less than last year, and for several years past there has not been so dull a market. None of the usual extensive buyers were present, and sellers were disinclined to part with their top lots, awaiting the approaching fair at Ballinasloe. Farmers holding small lots were obliged to sell, owing to the scarcity of hay. Beef was in fair demand, heifers ranging from £12 to £15; bullocks from £10 to £14 14s.; store cattle not in request, and a large number remained unsold. BALLIBAY: The demand for stock was uncommonly good, and prices seemed on the rise. The sheep fair was characterised by a good demand also. STROKESTOWN: The demand was still in favour of bullocks of any age, but good stock of every kind met with a ready sale. Three-year-olds brought £10 10s. to £15, two-year-olds £8 to £11, year olds £5 to £8. There was a large supply of sheep, but not equal to the demand. Prices, 42s. to 50s.; lambs, 22s. to 30s. each. BAILIEBOROUGH: The sheep department was crowded, and a large amount of business was transacted. Good wedders brought 50s. to 62s. 6d. each, hogget ditto from 45s. to 55s. each;

ewes sold well. Fat cattle scarce, and all of this kind sold freely at 56s. to 62s. per cwt., inferior from 40s. upwards. Stores sold slowly, and a large proportion left unsold. Pig trade brisk, and prices showed a tendency to advance. Store pigs in good request. DUNLEER: Good beef brought 50s. to 60s. per cwt.; store bullocks, two-year-old, £9 to £13. Good dairy cattle were in demand, but inferior descriptions were a drug. NAVAN: Good beef was scarce, and brought 56s. to 60s. per cwt., inferior 45s. to 50s. On store bullocks there was a decline in prices. Good two-year-olds brought from £10 to £11 per head, inferior from £8 to £9. Store lambs were in good request. The supply of horses was large; some went as high as £50 to £70. Farmers' horses were on the fall in prices. Bacon brought a high figure. Store in request, at £2 to £3 each. CARLOW: There was a poor supply of stock. Some three-year-old heifers sold at £10 each. In sheep nothing prime offered. Bacon pigs 65s. per cwt. No store pigs. DUNDALK: The figures realised for cattle were lower than those obtained at late fairs, in some instances to the extent of 30s. per head. The sheep fair was very slow. Large heavy bacon pigs sold rapidly, and prime quality brought fully 52s. per cwt. TULLOUGHMORE: The stock exhibited was of an inferior description, and the prices ruled low. GALWAY: Prices also rated low. There was only a poor show of black cattle. Sheep ranged from 30s. to 40s.; lambs 14s. to 18s.; and Connemara sheep fetched from 13s. to 15s.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The month of September was showery, making the completion of the harvest a protracted business, but the work may now be considered as finished, with no serious damage to the late gatherings. Taking the whole cereal crops into consideration, we have perhaps reaped a fair average, and where deficiency obtains it is chiefly in the quality of the wheat and barley, much of both being very inferior, more especially the latter. The hay crop has been particularly good, with much well secured of a second cut in the Midland Counties, and all roots excepting potatoes have received benefit by the rains. The progress of disease among the latter is not so rapid as expected, but a great many were lost in the ground. Complaints increase in Ireland, where they are selling off cheap, in the fear of their not keeping: a large speculative demand has therefore sprung up for Indian corn as likely to be extensively used eventually as a substitute for this esculent. Notwithstanding the quantity of rain received, the subsoil of the land is unusually dry, and many wells as yet fail to give the usual supply of water; more rain may, therefore, be expected, and perhaps a wet winter. Preparations for autumnal sowing have commenced, which will require much dilligence from the over-growth of weeds, but it is to be hoped the weather will favour the deposit of the seed. The close of August was connected with a rapid fall in the wheat trade, when prices were brought so low that there seemed no room for a decline, but the state of feeling in the trade was equally against any important advance. September has therefore been a steady month, closing with a more cheerful tone, and some improvement on the starting price, say fully 1s. per qr., and as with this small increase the London market is comparatively the cheapest in the world, farmers have a right to gather confidence, and with the exercise of some patience they may find a more adequate remuneration than is now afforded. Millers have kept up the hand to mouth system. Foreign imports have come in on a smaller scale, Italy is seriously deficient, and a new decree from Naples extends the time for the admission of foreign imports to 30th June, 1860. This news has already influenced Odessa, Marseilles, and several foreign ports; but as the Italian markets are not speculative, and are under governmental serveillance, no great reliance can be placed on the permanency of their quotations. France, whence we have recently drawn our chief supplies, has undoubtedly had a deficient harvest, some making the deficiency 15 to 20 per cent. on the previous yield; Belgium and Holland are also short. Should France, therefore, as the season advances, turn the tables, a new range of prices may ensue; and though America is this year said to exceed last year's yield by a surplus of five millions of quarters, yet the consideration of price with this speculative people will determine their exports, and as yet New York is firm for white wheat, of 64lbs. per bushel weight, at 52s. per qr. Northern Germany this year has a very fine quality to boast of, but the quotations at Dantzic for fine wheat are nearly the same as in London, say 50s. to 51s. per qr. for the first quality high mixed. These considerations, with the better tone of our own country markets, all seem to say that the lowest rates have already been about reached, and the tendencies are towards amended quotations.

The rates noted below show recent prices abroad. Fine French flour in Paris has brought 35s. per sack, only worth in London about 37s. per sack, duty, freight, and expenses paid. The best wheat there was worth 44s., and at Bordeaux 46s. per qr. Red native wheat at Antwerp brought 47s., at Louvain 50s. In Amsterdam fine Polish brought 52s. Fine red at Hambro' was worth 46s. per qr. The quotations at Konigsberg were about 48s. New wheat was arriving at Odessa, fair quality Ghirka being worth about 38s. per qr., hard to 41s. At Galatz hard wheat had been placed for the Ionian Isles 30s. 6d. per qr., and contracts for soft new at 28s. 6d. for future delivery. Flour at Santander was worth 40s. per sack of 280lbs. At Barcelona 50s. per sack was paid, wheat both there and at Seville bringing 62s. per qr. for first quality. This is the more surprising as Spain this year is generally well spoken of, as to its yield of corn; but the difficulty of transit there greatly enhances the rates, and makes prices extremely irregular. At Naples foreign wheat was worth 48s. to 49s. 6d.: it was probable government would make sacrifices for the poor.

The first Monday opened on moderate supplies, both English and foreign; but the morning's contributions from Kent and Essex were quite an average. The quality was very middling; and as the day was fine, it was very dull, and only picked samples were taken at the previous rates, much of the inferior remaining unsold. The foreign business was small, at former prices, Baltic qualities finding most inquiry. The country advices this week were very similar to those of London; but the preponderance of new samples of a low description made old more in request. For new sorts several places quoted a further decline of 1s. per qr., as Spalding, Lynn, Wolverhampton, Gainsborough, and Newmarket. Liverpool, on the Tuesday's market, was better attended, wheat going off pretty freely, at the previous Friday's decline of 3d. per cental; and on Friday there was no change.

The second Monday began on a small quantity of English wheat, and only a moderate foreign arrival. The near counties, as though dissatisfied with former markets, sent up but little in the course of the morning. But the business resulting was in a like proportion, millers taking their leisure, and picking their lots grudgingly, at former rates; while at the Kentish stands, where there was some pressure to sell, rather less money was taken. Dry foreign was taken in retail, for mixing, at previous rates. The country this week, though better supplied, was quite indisposed to take its tone from the London advices, some farmers returning with their samples unoffered, though former rates were procurable; while several places reported higher quotations. Birmingham, Manchester, Wolverhampton, Spalding, Newark, were all 1s. per qr. dearer; Norwich and Newcastle making the advance 1s. to 2s. per qr. Liverpool also, on Tuesday, was 2d. per cental higher, with a better sale, and on Friday the further improvement was 2d. per cental more; but some places, as Gloucester and Bristol, only noted more firmness.

The third Monday still had only moderate supplies, about equally divided between foreign and English. Kent and Essex factors presented the usual morning's show of samples; and as the country markets were ahead, higher rates were generally demanded—say about 2s. per qr.; but eventually, the business done was at only 1s. per qr. advance on picked samples. The business in foreign was, however, decidedly better; and samples of quality brought fully 1s. per qr. more. The country markets fully acted on the London advices. Gloucester, Bristol, Gainsborough, Spalding, and Melton Mowbray reported 1s. to 2s. per qr. advance; Hull, Manchester, Boston, Lynn, Newbury, and many other towns, raising prices 1s.; but Birmingham, Leeds, and Sheffield were only in improved tone. Liverpool, on Tuesday, maintained the previous advance of 2d. per cental; and Friday was without change.

The fourth Monday began on larger receipts, both English and foreign; but the morning's supply from Kent and Essex was small. The trade was slow, but prices steady both for good English and foreign samples, the quality of the latter being preferred to the average of new English.

The flour trade, notwithstanding the great falling off in French supplies, has not varied through the month, town prices and Norfolks closing respectively at 43s. and 30s. per sack, as they began. Some American has lately been dropping in, but, it is feared, not of good quality.

The receipts of wheat and flour in London, for the four weeks, have been as follows—viz., 25,728 qrs. English, 30,145 qrs. foreign wheat, against 31,165 qrs. English, 44,219 qrs. foreign, for the same time last year. Of flour, 58,063 sacks country, 960 sacks 1,981 brls. foreign, against 61,031 sacks country, 15,652 brls. 2,345 sacks foreign, in 1858.

The total foreign imports for the Kingdom, in August, were 304,564 qrs. wheat, 118,115 cwt. flour.

The oat trade, in consequence of unusually heavy arrivals from Russia, has been depressed, and the value farther reduced about 6d. to 1s. per qr.—the first reduction being 6d. per qr. on the second Monday, and on the third, with a supply reaching to about 105,000 qrs., it again gave way, these being the heaviest receipts for one week since October, 1858. As the relative value in the Russian ports is greater than here, and the approach of winter will prevent exports thence, an improvement seems very probable as supplies diminish. On the fourth Monday, indeed, with large supplies, again there was a reaction in favour of Russian samples to the extent of 6d. per qr. The receipts in London for four weeks were 8,272 qrs. English, 1,830 qrs. Scotch, 12,456 qrs. Irish, and 250,600 qrs. foreign, giving a total of 273,158 qrs., against 194,000 qrs. in September, 1858. The exports for the month were 489 qrs. The imports into the kingdom for the month of August last were 300,317 qrs.

The short arrivals of barley through the month, both as respects native and foreign supplies, have given more tone to the trade in all good qualities. As yet very little fine English malting has come to the London market, picked samples being eagerly sought in the country at great prices, from 40s. to 48s., and even more, being paid for such. These extreme rates will in some measure compensate growers for the damage sustained generally to the crop, first by the excessive heat of July, and subsequently by sprouting from the rains. The market has, however, been very dull for light inferior and discoloured English, such being no better, or rather hardly so good as that brought in quantities from Odessa and the Black Sea. The new Saale description yet received, though kindly, has been thin, and only worth about 35s. to 38s. per qr., and fine new French has been scarce at Paris, and held high; so there is no probability of any successful competition with the finest Scotch and English. These are likely, therefore, to command high terms all through the season, and it is equally probable that the inferior sorts will remain low priced in consequence of free importations from the East, as well as the greater relative cheapness of maize. Foreign sorts have been firm, without change of value, through the entire month. The imports for the four weeks into London were 5,215 qrs. British and 9,987 qrs. foreign barley, against 4,976 qrs. British and 43,955 qrs. foreign in September, 1858.

The imports for the kingdom for the month of August were 97,450 qrs.

The malt trade, like that of barley, has undergone no fluctuations of value in the past month, but the sale of all qualities below the finest has been more difficult.

Old beans have about maintained their value through the month; but new coming to market earlier than usual, and in some quantity, before the demand becomes extensive, have given way 1s. to 2s. per qr. from the first-made prices. The present prices of old may tempt French houses to make some shipments. Some quantity may be expected from Egypt, and while oats rule so extremely low, the demand must be diminished, so that we cannot expect much improvement in the prices of old for some time, while if sales are forced they may probably be lower. The imports into London for the four weeks were 4,499 qrs. English and 3,849 qrs. foreign, against 3,863 qrs. English and 6,949 qrs. foreign in September, 1858. The entire imports for August were 21,060 qrs.

Since the new crop of peas has been got in, the supply has greatly increased, and the foreign arrivals have been fair. Seed peas have commanded good prices, but boilers not being in demand have been neglected, and all hog descriptions, especially maples, have given way in price; these latter, however, still command good prices, and seem more likely to be cheaper than otherwise, as the crop has generally been good, though the seed is small. The great falling off in the demand for white boilers last season, should it be continued this winter, must prevent any rise in this description; but as the relative proportion of the sorts grown is unknown, supplies will determine the matter. The contract for 1,000 qrs. gave boilers some improvement at the end of the month. The imports into London for four weeks were 3,074 qrs. native and 3,002 qrs. foreign, against 1,645 qrs. English and 2,290 qrs. foreign in September, 1858. The August imports throughout the kingdom were 9,455 qrs.

The linseed trade has been remarkably steady all through the month. The first week had heavy imports, but the arrivals being anticipated very slightly affected the market, and prices have scarcely varied. Cakes also, from the high prices realized for butchers' meat, have gone off well, notwithstanding the abundance of feed. The exports have been only moderate.

The seed trade has not yet opened for new foreign red or white cloverseed, prices being placed too high to attract attention here, especially in German white, in the uncertainty yet obtaining with regard to our own crops. Good prices, however, seem likely to be paid for fine white samples, and low rates for red seem improbable, unless for inferior sorts. Trefoil has rather given way. In trifolium the demand has ceased. Winter tares have been in good demand till lately, at lower rates, say at 7s. 6d. to 8s. per bush. White mustardseed seems again to have settled into dulness, the samples generally left over being grey coloured and inferior. Hempseed, rapeseed, and other seeds have been only in limited demand, at about former prices.

CURRENCY PER IMPERIAL MEASURE.

	Shillingspe Quarter.	
WHEAT, Essex and Kent, white new 37 to 46 ....old	39 to	47
,, red new 36 42 ....old	38	44
Norfolk, Linc., and Yorks., red	37	45
BARLEY, malting, new..— to 37 .... Chevalier, new	36	40
Grinding .... 26 27 .... Distilling	28	30
MALT, Essex, Norfolk, and Suffolk .... 49 to 57 fine	60	67
Kingston. Ware, and town made .. 49 57 ,,	60	67
Brown........................ 48 49	—	—
RYE ....new — —	30	31
OATS, English, feed .... 21 26....... Potato.......	26	28
Scotch, feed......... 22 27....... Potato.......	26	29
Irish, feed, white .... 21 24 fine	25	27
Ditto, black..................... 21 23 ,,	—	25
BEANS, Mazagan........ 35 41...... Ticks	36	41
Harrow .... 37 45...... Pigeon.......	42	48
PEAS, new, white, boilers 40 45 Maple 40 42..Grey	34	36
FLOUR, per sack of 280lbs., Town, Households 37s., fine	41	43
Country..nominal .. 29 31 ...... Households..	31	35
Norfolk and Suffolk, ex-ship..................	29	30

FOREIGN GRAIN.

	Shillings per Quarter.	
WHEAT, Dantzic, mixed 48 — high do. — 50 extra	—	53
Konigsberg........48 50 ,, — —	—	—
Rostock ....50 — fine 53 old 54	—	—
American, white.. 42 48 red.... 42 46	—	—
Pomera., Meckbg., & Uckermrk, red 47 49	—	—
Silesian, red ....41 46 white	46	48
Danish and Holstein	46	47
Russian, hard 44 45 .. French..40 46 white	44	47
St. Petersburg and Riga	42	46
Rhine and Belgium..........................	44	49
BARLEY, grinding ....23 28 .... Distilling....	28	30
OATS, Dutch, brew, and Polands 23 27 Feed........	20	24
Danish and Swedish, feed ..20 24 Stralsund....	19	24
Russian................................ 19s.	21s.	6d.
BEANS, Friesland and Holstein....................	37	42
Konigsberg ....34 40 Egyptian	35	37
PEAS, feeding ....35 36 fine boilers ..	38	42
INDIAN CORN, white ....30 31 yellow	29	31
FLOUR, per sack ......French 28 33 Spanish..none	—	—
American, per barrel, sour. 22 26 sweet ... ,,	—	—

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS:	Wheat.		Barley.		Oats.		Rye.		Beans		Peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Aug. 13, 1859	43	11	30	1	25	2	33	3	46	7	36	9
Aug. 20, 1859	44	1	31	1	25	5	30	8	44	6	37	8
Aug. 27, 1859	44	5	32	11	25	5	32	8	44	6	37	9
Sept. 3, 1859	44	0	34	8	24	5	30	11	43	5	38	10
Sept. 10, 1859	42	9	33	9	23	0	31	6	41	3	37	10
Sept. 17, 1859	41	11	35	3	21	7	30	6	40	4	38	8
Aggregate average	43	6	32	11	24	2	31	7	43	9	37	11
Same time last year	44	8	34	1	27	1	34	8	46	7	44	5

MONTHLY RETURN.

AN ACCOUNT SHEWING THE QUANTITIES OF CORN GRAIN, MEAL, AND FLOUR, IMPORTED INTO THE UNITED KINGDOM, AND ADMITTED TO HOME CONSUMPTION, IN THE MONTH OF AUGUST, 1859.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.			Imported from British Possessions out of Europe			Total.		
	qrs.	bush.		qrs.	bush.		qrs.	bush.	
Wheat	304508	0		56	3		304564	3	
Barley	97450	5		—			97450	5	
Oats	300283	0		34	7		300317	7	
Rye	26113	5		—			26113	5	
Peas	8369	6		1085	4		9455	2	
Beans	21060	2		—			21060	2	
Maize or Indian Corn ..	162449	1		377	0		162826	2	
Buck Wheat	1198	1		—			1198	1	
Bere or Bigg	—			—			—		
Total of Corn and Grain	921432	4		1553	6		922986	2	
	cwts.	qr.	lb.	cwts.	qr.	lb.	cwts.	qr.	lb.
Wheat Meal and Flour.	107542	0	4	10623	3	15	118165	3	19
Barley Meal	—			—			—		
Oat Meal	5	1	0	10	0	11	15	1	11
Rye Meal	—			—			—		
Pea Meal	—			—			—		
Bean Meal	—			—			—		
Indian Meal	286	2	24	507	2	0	794	0	24
Buck Wheat Meal......	3	0	0	1	0	0	4	0	0
Total of Meal and Flour.	107837	0	0	11142	1	26	118979	1	26

COMPARATIVE AVERAGES—1858-59.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1858.		s.	d.
Wheat......	112,236 qrs.	41	11	Wheat......	133,600 qrs.	44	11
Barley......	14,870 ..	35	3	Barley......	17,408 ..	36	1
Oats	10,881 ..	21	7	Oats...	7,782 ..	25	8
Rye	720 ..	30	6	Rye	270 ..	34	6
Beans	4,865 ..	40	4	Beans	2,753 ..	46	3
Peas...	1,462 ..	38	8	Peas	639 ..	45	1

PRICES OF SEEDS.

BRITISH SEEDS.

Mustardseed, per bush., new 12s. to 16s., brown 12s. to 16s.
Coriander, per cwt........................... 14s. to 16s.
Canary, per qr........................... 68s. to 70s.
Trefoil, new........................... 24s. to 26s.
Tares, Winter, new, per bushel ....8s. to 8s. 6d.
Linseed, per qr., sowing —s. to 64s.. crushing 54s. to 58s.
Linseed Cakes, per ton .... £9 10s. to £10 10s.
Rapeseed, per qr........................... 54s. to 58s.
Rape Cake, per ton ....£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to —s............white —s. to —s.
Trefoil, ... —s. to —s.
Hempseed, small, 33s. per qr............ Dutch —s. to 38s.
Coriander, per cwt........................... 16s. to 18s.
Carraway ,, ... 36s. to —s.
Linseed, per qr., Baltic 52s. to 56s....Bombay 58s. to 60s.
Linseed Cake, per ton................ £9 10s. to £11 0s.
Rapeseed, Dutch .... 54s. to 58s.
Rape Cake, per ton ....£5 0s. to £6 0s.

HOP MARKET.

LONDON, MONDAY, Sept. 26.—Our market has continued brisk during the past week, with an advance of 2s. to 3s. per cwt. on Weald of Kents and Sussex; Mid and East Kents have not as yet come up in any quantity.

Our currency is as follows:

Mid and East Kents	90s.,	112s.,	140s.
Weald of Kents..............	63s.,	68s.,	76s.
Sussex......................	58s.,	64s,	67s.

MEASE and WILD.

WORCESTER HOP FAIR, Sept. 19.—This being our great annual hop fair has attracted numerous buyers from all parts of the country, and as the supply is seasonably good, and the quality and colour much beyond the average of years, we have had an active demand for the best description of choice Goldings and Mathon hops for immediate consumption. The colour, thin, and mismanaged lots have also found buyers at relative values. The increasing consumption of Worcester hops by the most celebrated brewers is a proof of their being duly appreciated, and they deservedly rank in quality with the Goldings of East and Mid-Kent; but being lower in price, and co-equal in flavour, are sure to increase in the estimation of all first-class consumers. KITCHIN & CALDICOTT.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, Sept. 26.—Increased supplies of potatoes are on offer in these markets. Good and fine samples are in fair request, at full prices; but all other kinds are rather dull. Shaws are selling at from 35s. to 80s., Regents 70s. to 110s., Kent and Essex 70s. to 110s., and Scotch 70s. to 80s. per ton.

COUNTRY POTATO MARKETS.—YORK, Sept. 17.—Potatoes sell at 6d. per peck, and 1s. 6d. to 2s. per bushel. LEEDS, Sept. 20.—A good supply of potatoes, which sold at 5½d. to 6½d. wholesale, and 6½d. to 8d. retail per 21lbs. RICHMOND, Sept. 17.—Potatoes 2s. 4d. per bush. SHEFFIELD, Sept. 20.—Potatoes sell at from 5s. to 7s. per load of 18 stones. MANCHESTER, Sept. 20.—Potatoes 4s. 6d. to 8s. 6d. per 252lbs.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:	s.	s.
Friesland..................	112 to	116	Cheshire..................	60	80
Kiel..................	—	—	Cheddar..................	60	82
Dorset..................	118	120	Double Glouc.	54	68
Carlow..................	98	104	HAMS:		
Waterford..................	98	104	York	80	90
Cork..................	92	104	Westmoreland..........	80	90
Limerick	90	100	Irish	70	80
Sligo..................	94	104	BACON: Wiltshire, dried	66	72
FRESH, per dozen 11s. 0d. to 14s. 0d.			Irish, green	58	66

WOOL MARKETS.

BRITISH WOOL MARKET.

BERMONDSEY, MONDAY, Sept. 26.—The state of our market is remarkably healthy, the amount of business having been on an unprecedented scale of magnitude, and this not on speculation, but merely for the supply of the regular demand of the consumers, who have had such extensive orders for the manufactured articles, that they have not been able to supply them as fast as they have been required. The export trade has been remarkably good, and there is no doubt of a continuance of prosperity to our staple commodity as improved cultivation of the soil, followed by abundant harvests in various parts of the world, and accelerated communication of distant portions of the world's population with the others, have brought about an enormously extended trade all over the world. The stock of wool in hand is remarkably small for the season of the year, and this circumstance, coupled with a good and wholesome demand, points to enhanced rates within a few months' time.

Per pack of 240lbs.				
Fleeces—Southdown Hogs.............	£18	10 to	£19	10
Do. Half-bred Hogs	18	10	19	0
Do. Kent	17	10	18	0
Do. Southdown Ewes and Wethers	17	0	17	10
Do. Leicester do................	16	0	17	0
Sorts—Clothing, picklock	18	10	19	0
Do. Prime and picklock	17	10	18	0
Do. Choice	16	0	17	0
Do. Super....................	14	0	15	0
Do. Combing—Wethermatching ...	20	0	21	0
Do. Picklock....................	17	0	18	0
Do. Common....................	14	10	15	10
Do. Hog matching	23	0	24	0
Do. Picklock matching............	17	10	18	10
Do. Super do.	14	10	15	10

LIVERPOOL WOOL MARKET, SEPT. 24.

ENGLISH WOOL.—The dulness which has prevailed in the English market for some time is passing away, and business has again become more active. Prices may be quoted a little higher, and the market shows great firmness.

	s.	d.	s.	d.
Laid Highland Wool per 24 lbs.....	11	6 to	13	0
White Highland do................	14	6	16	6
Laid Crossed do.. unwashed....	15	0	16	9
Do. do.. washed	16	0	18	6
Laid Cheviot do.. unwashed....	17	6	20	0
Do. do.. washed	20	0	26	0
White Cheviot do.. washed........	33	0	40	0

FOREIGN AND COLONIAL WOOL MARKET.

Per lb.	s.	d.		s.	d.
German, Saxon, and Prussian. — 1st and 2nd Elect	3	4	to	4	6
Prima	2	4		3	0
Secunda	2	0		2	4
Tertia	1	8		1	10
COLONIAL:—SYDNEY—Lambs	1	10		2	2½
Scoured do.	1	2		2	11½
Unwashed	0	7½		1	4
Locks and Pieces............	0	10½		1	10½
Slipe and Skin	0	11		1	10
PORT PHILIP—Lambs	1	5		2	4
Scoured do....................	1	2		2	9½
Unwashed	0	6		1	7
Locks and Pieces............	0	8		1	10½
S. AUSTRALIAN—Lambs	1	8		1	9½
Scoured do.	1	3½		2	6
Unwashed	0	4		1	3½
Locks and Pieces............	1	1		1	2
V. D. LAND—Lambs................	1	6		2	5
Scoured do....................	1	7		2	9
Unwashed	0	9½		1	6
Locks and Pieces............	0	8		1	10½
CAPE OF GOOD HOPE—Fleeces	1	1½		2	2
Lambs....................	1	2		2	0½
Scoured	1	2½		2	1½
Unwashed....................	0	7½		1	5

BRESLAU WOOL REPORT, Sept. 22.—We had again a very lively trade, and transactions effected to the amount of nearly 2,500 cwts. The chief purchaser has been an extensive Saxon comber who for the first time visited our place, and acquired about the half of the above quantity, mostly combing wools, at from 62 to 68 thalers; the other half, consisting of fine Russian and Polish cloth wools at from 70 to 85 ths., lambs' at from 85 to 105 th., and Charkow scoured Wools at from 90 to 100 ths., have been taken partly by home manufacturers and commissioners, partly by Berlin and Saxon wholesale buyers. Prices in general have been firmly maintained, and only lambs' Wool was to be had 4 to 6 per cent. cheaper. Fresh imports from Austria, Poland, and Russia continued to arrive on a very liberal scale, and we have lately received about 4,000 cwts.—GUNSBURG, Wool-broker.

Printed by Rogerson and Tuxford, 246, Strand, London.

IMPORTANT TO FLOCKMASTERS.

THOMAS BIGG,

AGRICULTURAL AND VETERINARY CHEMIST,

BY APPOINTMENT, TO H.R.H. THE PRINCE CONSORT, K.G., &c.

LEICESTER HOUSE, GREAT DOVER-STREET, BOROUGH, LONDON,

Begs to call the attention of Farmers and Graziers to his valuable SHEEP-and LAMB DIPPING COMPOSITION, which requires no Boiling, and may be used with Warm or Cold Water, for effectually destroying the Tick Lice, and all other insects injurious to the Flock, preventing the alarming attacks of Fly and Shab, and cleansing and purifying the Skin, thereby greatly improving the Wool, both in quantity and quality, and highly contributing to the general health of the animal.

Prepared only by Thomas Bigg, Chemist, &c., at his Manufactory as above, and sold as follows, although any other quantity may be had, if required :—

4 lb. for	20 sheep,	price,	jar included ……	£0	2	0
6 lb.	30	,,	,, ,, ……	0	3	0
8 lb.	40	,,	,, ,, ……	0	4	0
10 lb.	50	,,	,, ,, ……	0	5	0
20 lb.	100	,,	,, (cask and measure	0	10	0
30 lb.	150	,,	,, included)	0	15	0
40 lb.	200	,,	,, ,, ……	1	0	0
50 lb.	250	,,	,, ,, ……	1	3	6
60 lb.	300	,,	,, ,, ……	1	7	6
80 lb.	400	,,	,, ,, ……	1	17	6
100 lb.	500	,,	,, ,, ……	2	5	0

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price **5**s. per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.

'Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and that it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards. and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

"I remain, dear Sir, your obedient servant,
"For JOHN TINGEY, Esq.,
"To Mr. Thomas Bigg." "R. RENNY.

In addition to the foregoing, he has very materially improved, as well as considerably reduced the price of his Dipping Apparatus; and he would venture to suggest that no Flockmasters ought now to be without one. Price in London,

New and Improved Dipping Apparatus, on Wheels	£14	0	0
Ditto ditto with Iron-bar Drainer	5	0	0
Ditto ditto ……..	4	0	0
Ditto, plain, with Wooden Drainer………	3	0	0

N.B.—Catalogues, containing List of Patrons, Testimonials, &c., to be had of all agents, or sent direct per post free.

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A MEDICAL ESSAY ON NERVOUS AND GENERATIVE DISEASES.

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At home for consultation daily, from 10 till 3, and 6 till 8. Sundays from 10 till 1.

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Published by the Author: sold also in sealed envelopes by Gilbert, 49, Paternoster-row; Hannay, 63, Oxford-street; Mann, 39, Cornhill, London; "Herald" Office, Taunton; Lockyer, Lincoln; Heywood, Oldham-street, Manchester; Howell, 6, Church-street, Liverpool; Ashley, Post-office, Newbury; Ferris and Score, Union-street, Bristol; Pierson, Shrewsbury; Jull, Braintree; Thew, Lynn; Peat, Chichester; Lurcock, Maidstone; Cook, Ipswich; Huscroft, Bury St. Edmunds; Dove, Swindon; Jearey, Bridewell Alley, Norwich; Smith, Rose Crescent, Cambridge; Slatter, Oxford; and by all Booksellers and Chemists in the United Kingdom.

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FOR THE HAIR, THE SKIN, AND THE TEETH,

are universally held in high estimation; and the fact of the distinguished patronage they enjoy, their general use in all countries, and the numerous testimonials constantly received of their efficacy, sufficiently prove the value of their "Macassar Oil," "Kalydor," and "Odonto."

THE FIRST PRODUCTION IN THE WORLD

For the GROWTH and IMPROVEMENT of the HUMAN HAIR is

ROWLANDS' MACASSAR OIL

proved beyond question by its successful results for MORE than HALF A CENTURY past, and when other specifics have failed.

It prevents Hair falling from falling off or turning grey, strengthens weak HAIR, cleanses it from Scurf and Dandriff, and makes it BEAUTIFULLY SOFT, PLIABLE, and GLOSSY. In the growth of

THE BEARD, WHISKERS, AND MUSTACHIOS

it is unfailing in its stimulative operation. For CHILDREN it is especially recommended as forming the basis of A BEAUTIFUL HEAD OF HAIR.

Its invaluable properties have obtained the Patronage of ROYALTY, the NOBILITY, and the ARISTOCRACY throughout Europe; while its introduction into the Nursery of ROYALTY, and the high esteem in which it is universally held, with numerous Testimonials constantly received of its efficacy, afford the best and surest proofs of its merits.—Price 3s. 6d. and 7s.; Family Bottles (equal to four small) 10s. 6d.; and double that size, 21s.

CAUTION.—On the Wrapper of each Bottle are the words, "ROWLANDS' MACASSAR OIL," &c., in white letters, and their Signature, "A. ROWLAND & SONS," in Red Ink.

A BEAUTIFUL COMPLEXION,

AND SOFT AND FAIR HANDS AND ARMS

Are realized by the use of

ROWLANDS' KALYDOR,

This Royally-patronized and universally-esteemed Specific exerts the most soothing, cooling, and purifying action on the Skin, eradicates *Freckles, Tan, Pimples, Spots, Discoloration,* and other *Cutaneous Visitations,* and renders

THE SKIN CLEAR, FAIR, AND BLOOMING.

CAUTION.—The words "ROWLANDS' KALYDOR," &c., are on the Wrapper, and their Signature, "A. ROWLAND & SONS," in Red Ink, at foot.—Price 4s. 6d. and 8s. 6d. per bottle.

WHITE AND SOUND TEETH

Are indispensable to PERSONAL ATTRACTION, and to health and longevity by the proper mastication of food.

ROWLANDS' ODONTO,

OR, PEARL DENTIFRICE,

Compounded of ORIENTAL INGREDIENTS, is of inestimable value in

IMPROVING AND BEAUTIFYING THE TEETH,

STRENGTHENING THE GUMS,

And in rendering

THE BREATH SWEET AND PURE.

It eradicates Tartar from the Teeth, removes spots of incipient decay, and polishes and preserves the enamel, to which it imparts a

PEARL-LIKE WHITENESS.

As the most efficient and fragrant aromatic purifier of the Breath, Teeth, and Gums ever known, ROWLANDS' ODONTO has, for a long series of years, occupied a distinguished place at the Toilets of the Sovereigns and the Nobility throughout Europe; while the general demand for it at once announces the favour in which it is universally held.—Price 2s. 9d. per box.

CAUTION.—The words "ROWLANDS' ODONTO" are on the Label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each box.

Sold by the Proprietors and by Chemists and Perfumers.

⁂ BEWARE OF SPURIOUS IMITATIONS!

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THE
FARMER'S MAGAZINE,
AND
MONTHLY JOURNAL
OF
THE AGRICULTURAL INTEREST.

Dedicated
TO THE
FARMERS OF THE UNITED KINGDOM.

LONDON:
PUBLISHED BY ROGERSON AND TUXFORD, 246, STRAND.

PRICE TWO SHILLINGS.

ROGERSON AND TUXFORD,] [PRINTERS, 246, STRAND.

DR. HASSALL

ON

THORLEY'S FOOD FOR CATTLE.

FROM THE "MARK LANE EXPRESS," 10th JAN., 1859.

74, WIMPOLE STREET, CAVENDISH SQUARE, 21*st December*, 1858.

HAVING, on more than one occasion, been requested to make an analysis of THORLEY'S WELL-KNOWN FOOD FOR CATTLE, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of THORLEY'S FOOD FOR CATTLE. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, thus, to the composition of THORLEY'S FOOD FOR CATTLE, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing THORLEY'S FOOD FOR CATTLE with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others, at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more valuable, but more expensive, articles. In some of the Foods I have detected ingredients which are positively hurtful.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. THORLEY'S FOOD FOR CATTLE is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the cleansing, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of THORLEY'S FOOD this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of THORLEY'S FOOD, they would be unable to extract all the nourishment which such articles actually contain. I consider, then, that the use of THORLEY'S FOOD is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—THORLEY'S FOOD FOR CATTLE as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,

Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected;" &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

Sir,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum*, and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-pint) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

THE FARMER'S MAGAZINE.

NOVEMBER, 1859.

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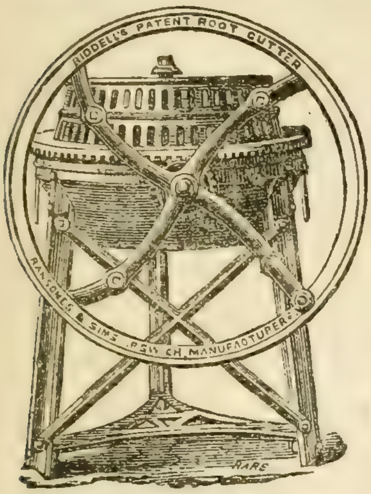
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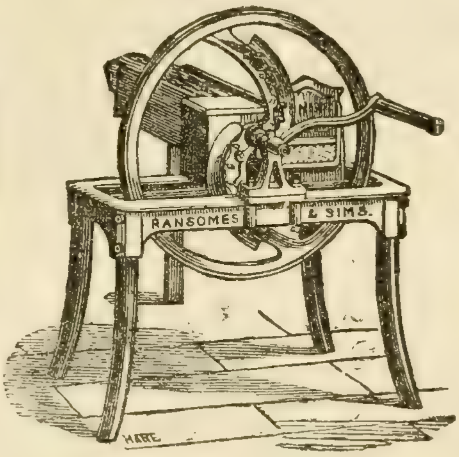

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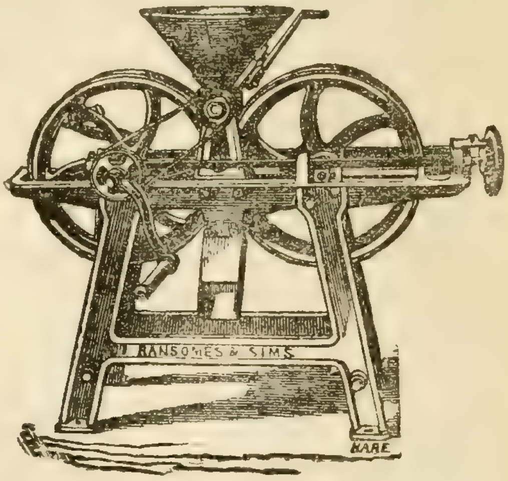

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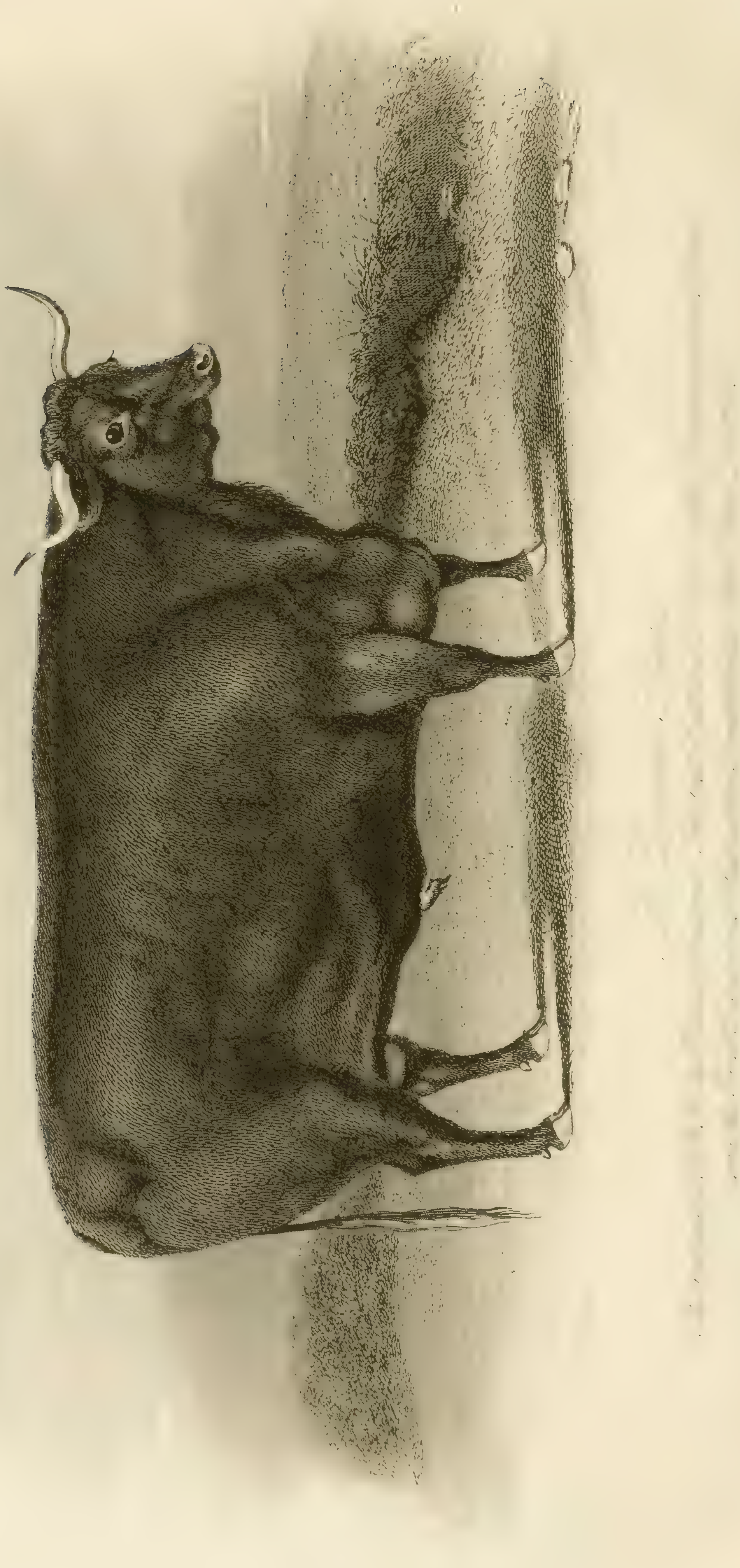

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THE FARMER'S MAGAZINE.

NOVEMBER, 1859.

PLATE I.

A DEVON STEER,

THE PROPERTY OF HIS ROYAL HIGHNESS THE PRINCE CONSORT.

This famous steer, bred by Mr. George Turner, of Barton, Exeter, was by Abd-el Medjid, an own brother to Abd-el Kader, out of Lady (241), by Duke of York.

Lady took a second prize at the Royal Agricultural Society's Meeting at Gloucester, a first at Carlisle, and another first at one of the Bath and West of England meetings.

The Prince's steer was never exhibited but twice. At the Birmingham Show in December, 1858, in the class under three years and three months' old, he took the first prize of Ten Sovereigns, the extra prize of Twenty Sovereigns as the best Devon in the yard, and the customary Silver Medal to the breeder. In the week following, at the Smithfield Club Show, he again took the first prize of Twenty-five Sovereigns in the aged class, of steers or oxen over three years old, with another Medal for Mr. Turner. The steer was purchased here by Mr. Petherbridge, butcher, of Hastings Street, Brunswick Square.

Although his Royal Highness has a few Short-horns and a Booth bull at one of the farms, the Devons are still the favourites at Windsor; and, as far as this illustration of the breed goes, with very good showing. Seldom has there been a handsomer beast to look at, or one that would promise to die better, than the Birmingham "best" Devon of 'fifty-eight.

PLATE II.

THE TENANT'S RIGHT.

This system of the tenant's right to compensation for unexhausted injuries is gradually coming to be more and more admitted; while it is made payable in that curious composition, a rabbit pie—"smothered in onions;" the more delicate curry; or a by no means bad imitation of hare soup. There are various recipes for getting rid of rabbits, as there are of rats and other vermin. The latest we have heard of is to give a keeper six months' notice to quit; and the amount of destruction he will contrive to commit in that time amongst his perquisites is said to be something extraordinary. However, keen ferrets, rough terriers, and lads home for the holidays ought to be able to thin them out a bit.

THE ACTION OF SOILS ON LIQUID MANURES.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The action of soils on the solid matters of liquid manure is of great interest to the farmer. The phenomena, indeed, which attend such application have long engaged the attention of the owners of water meads. The great water meadows formed in the valleys of our chalk formations are instances of this. The cultivator there remarks that the bright sparkling springs issuing from the chalk are excellent for irrigation, and that, too, as soon as they have risen from the earth. The good effect, then, of a chalk-formation spring on a soil abounding already with chalk, naturally enough seems rather unaccountable. The analysis of these waters discovers no ingredients of which the soil seems deficient. But let us proceed by steps; let us read over together the analysis of one of these chalk-formation Surrey springs. From an imperial gallon of this water, analyzed by Professor Way, were obtained:

	Grains.
Organic matter	1.74
Silica	.45
Carbonate of lime (chalk).. ..	16.
Carbonate of magnesia	.47
Common salt	1.38
Sulphate of soda	.98
Sulphate of potash	.33
Total solid residue in a gallon ..	21.35

We can hardly, then, ascribe to the solid matters of this water the beneficial effects which it produces in irrigation. Still, that they do yield food to the grasses of the water-meads is evident. These springs furnish, in fact, the water for some of the most valuable meads of the chalk districts. And, moreover, the farmers of these meadows find that, when the water has been once used on a meadow, it is thereby rendered useless for irrigating another grass field. This seems to imply that the grasses of these chalk soils do find nutriment in the solid contents of the water; and this conclusion is apparently further supported by the fact observed in the valley of the Itchen, viz., that water that has been thus used up, after it has passed Winchester, and received some of the city sewage, is again possessed of its former and, indeed, increased irrigating value. Then, again, in the instance of the sewage-irrigated meads of Edinburgh, watered so copiously with such rich water, that neither the soil or its grasses can in the first application but partially exhaust it of its riches—here the liquid is again immediately applied to other meadows with the greatest advantage.

The questions, then, which have recently engaged the attention of Professor Voelcker, are most important to the holders of water meadows. And these cultivators, I feel well assured, will long continue to increase in number and in the extent of their meads. There are several reasons for this. The very rich waters supplied by the improved drainage of our densely populated places—the increasing dryness of our climate—the steady prices obtained, and the enlarging demands for meat—all tend to promote every effort to add to our supply of green food. In the Professor's experiments (and I propose merely to give in this paper one of his trials), 2,000 grains of the soil of a field belonging to the Royal Agricultural College at Cirencester, were mixed with 7,000 grains of a perfectly clear liquid manure. If we first examine the composition of the soil, and then the analysis of the liquid manure, both *before* and after it had been for 24 hours well mixed and occasionally stirred with the soil, we shall perceive what portion of the solid contents of the liquid a calcareous clay absorbed. This examination we need hardly make in other than the Professor's own words (*Jour. Roy. Ag. Soc.*, vol. xx. p. 135). When submitted to a mechanical analysis, this soil was found to contain, in 100 parts—

Moisture	1.51
Organic matter	11.08
Carbonate of lime	10.82
Clay	52.06
Sand	24.53
	100.00

It appears from this that the soil in question is a calcareous clay. In wet weather it is very sticky and stiff; worked in dry weather it breaks up in hard unmanageable lumps. By autumn cultivation its physical properties have been considerably improved. A portion of the soil, taken from a large well-prepared sample, yielded, on being submitted to chemical analysis, the following results:

Moisture	1.51
Organic matter and water of combination	11.08
Oxides of iron and alumina	14.25
Carbonate of lime	10.82
Sulphate of lime	.71
Magnesia	.51
Potash (in acid solution)	.32
Soda (in acid solution)	.05
Phosphoric acid	.10
Insoluble silicates and sand (chiefly clay)	61.78
	101.13

The remarkable changes which took place in the composition of the original liquid when left in contact with the Cirencester soil will appear by the subjoined tabular statement, in which the composition of the liquid manure before and after contact with the soil is given, and which also states the gain or loss in the several constituents found in the filtered liquid. In this table the gain is expressed by the sign +; the loss by —.

Composition of Liquid Manure before and after Filtration through Soil.

	Before contact with Soil.	After contact with Soil.	Gain or Loss.
An imperial gallon contains:			
Water and volatile ammonia compounds	69,888.14	69,886.60	—1.54
Containing—			
Ammonia, as carbonate and humate of ammonia	(35.58)	(20.81)	—14.77
Organic matters	20.59	34.77	+14.18
Containing nitrogen	(1.49)	(1.84)	+.35
Equal to ammonia	(1.81)	(2.23)	+.42
Inorganic matters	(91.27)	(78.63)	—12.64
Consisting of—			
Soluble silica	2.34	.70	—1.64
Oxide of iron	none	2.55	+2.55
Lime	11.48	22.42	+10.94
Magnesia	2.87	1.17	—1.70
Potash	16.92	3.40	—13.52
Chloride of potassium	2.74	none	—2.74
Chloride of sodium	40.35	33.31	—7.04
Phosphoric acid	4.83	.60	—4.23
Sulphuric acid	3.94	2.88	—1.06
Carbonic acid and loss	5.80	11.60	+5.80
	70,000.00	70.000.00	

Lime, it will be noticed, was rendered soluble by the liquid manure left in contact with the soil. An imperial gallon contained nearly eleven grains more lime after than before filtration.

It is worthy of notice that the liquid originally contained no oxide of iron. Left in contact with the soil, it dissolved 2.55 grains per gallon.

The small proportion of potash left in the manure after contact with the soil, is particularly interesting, inasmuch as it shows that the soil not only possesses the power of absorbing ammonia, but also potash—a constituent which in an agricultural point of view is of the greatest importance. It appears that potash is retained by the soil even with greater avidity than ammonia.

In a much minor degree than potash, the soil absorbed chloride of sodium. The power of soils to absorb potash, then, presents us with a striking contrast to their apparent indifference to absorb soda from its soluble combinations.

It is likewise (adds Professor Voelcker) satisfactory to have in this experiment a direct proof of the power of the soil to take up phosphoric acid from soluble combinations with which it is brought in contact. Nearly the whole of the phosphoric acid originally contained in the manure was taken up by the soil.

Although it is quite true that nearly the whole of the phosphoric acid contained in a liquid is retained by a moderate quantity of soil, it cannot be inferred from this that plants take up phosphoric acid in the shape of an insoluble compound; for a soil which is capable of absorbing a large quantity of phosphoric acid, when brought in contact with a liquid containing but a small proportion of the amount of phosphoric acid which the soil is capable of retaining, never completely removes the phosphoric acid. A certain quantity remains in solution—a quantity which I believe is sufficient to account for all the phosphoric acid which is found in the ashes of plants.

In all probability it is the function of the soil to transform readily soluble compounds of phosphoric acid into combinations which are so little soluble in water that in common life they pass for insoluble, but which are still sufficiently soluble to supply the growing plant with the necessary amount of this kind of mineral food. This beautiful power of soils effectually prevents the waste which heavy rains infallibly would occasion.

Other experiments of a similar kind were made by Professor Voelcker—viz., with the soil from a permanent pasture, from a fertile soil, and from a poor sandy field.

The sandy soil was found to possess in a very weak degree the power of absorbing ammonia or potash from the liquid manure. But it absorbed a considerable proportion of lime. Phosphoric acid was also absorbed, but to a less extent than by the clay soil.

One important fact to be gathered from the experiment with a poor sandy soil is thus briefly alluded to by the professor:

"In the preceding experiments we have seen that liquid manure kept in contact with soil becomes much richer in lime. But in the case of the sandy soils, instead of lime being taken up by the liquid manure, a considerable quantity of the carbonate of lime contained in the liquid used in the experiment was actually removed by the soil. The amount of lime in this soil is evidently insufficient to supply the wants of the crops we cultivate on the farm; it is, therefore, fortunate that a soil thus constituted posseses the power of depriving manuring mixtures of those constituents which are required in considerable quantities for sustaining a healthy growth of plants. This property of soils to store up food for plants is not confined to one particular kind of fertilizing matter, but it applies to all, and manifests itself in different ways. In most cases special power exists in soils to remove ammonia, potash, and phosphoric acid from liquid fertilizers brought in contact with them; and less important and more abundant materials pass into the liquid that drains from soils. But this order is reversed if liquid fertilizers act upon such soils as the one used in the experiment before us. Here lime, a cheap and usually abundant ingredient of soils, is actually absorbed from liquid manure, and retained in a soil which is peculiarly deficient in lime. Experience has shown, moreover, that sandy soil is more benefited by lime and calcareous mixtures than by any other description of manure."

The large quantity of liquid which the pastures on sandy soils will beneficially absorb is well known to the irrigator. The inability of such soils to retain either ammonia or potash evidently renders necessary (to furnish an adequate amount of these for the grasses) a more extended and a more frequently renewed supply of these in liquid manure.

Upon the whole, the Professor considers that the following points of interest have been determined by his experiments, viz.—

1. Liquid manures, in contact with soils, undergoes a number of chemical changes.

2. These changes are greater in the case of clay and calcareous soils than in the case of sandy soils.

3. Passed through clay, loamy, and calcareous soils, liquid manure leaves a considerable quantity of ammonia in the soil.

4. Under the same circumstances, liquid manure parts likewise with potash and phosphoric acid.

5. Sandy soils remove from liquid manure but little ammonia, and likewise not much potash.

6. With the exception of purely sandy soils, liquid manure, as used in practice, leaves the greater portion of all the most valuable fertilizing matters in the generality of soils.

7. The comparative power of different soils to remove ammonia, potash, and phosphoric acid from liquid manure differs greatly.

8. Liquid manure passed through sandy soils rich in soluble silica takes up soluble silica.

9. Soils that absorbed much ammonia also absorbed much potash, and the soils which absorbed little ammonia also absorbed little potash.

10. Soda-salts (common salt) are either not at all removed from liquid manure or only to a small extent.

11. Chlorine, and generally sulphuric acid, remain unaltered in quantity in liquid manure passed through different soils.

12. In most cases, liquid manure left in contact with different soils becomes richer in lime.

13. The proportion of lime which liquid manure takes up from the soils with which it is brought in contact does not altogether correspond with the relative proportions of lime in the different soils.

14. Liquid manure, passed through a sandy soil greatly deficient in lime, became poorer in lime: thus showing that the property of soils of storing up food for plants is not confined to ammonia, potash, or phosphoric acid; but that it is a property which manifests itself in a variety of ways. Thus, soils rich in lime yield this substance to liquid manure; soils in which lime is deficient may abstract it from liquid manure. Again, potash usually is removed from liquid manure left in contact with soil; but, in particular cases, liquid manure may even become richer in potash after filtration through soil.

15. Very soluble saline fertilizing compounds are probably injurious to vegetation when supplied too abundantly to the land.

16. All moderately fertile soils have the power of rendering the more important soluble fertilizing matters much less soluble; but in none of the experiments were ammonia, potash, phosphoric acid, and other compounds that enter into the composition of the ashes of our cultivated crops, rendered perfectly insoluble.

17. It does not appear probable that plants take up mineral food from the soil in the shape of totally insoluble combinations.

It is difficult to assign too high a value to investigations like these of Professor Voelcker. It is always satisfactory to understand the action of fertilizers, and more especially of those in a state of solution. I have already referred to some of the reasons why it is most probable that the use of these will be very materially increased, and there is every reason to conclude, from the experience of the Belgian farmers, that the *preparation* of liquid manures, especially those containing chiefly organic matters, will hereafter be a profitable object of the farmer's attention. The more general introduction of agricultural steam engines will much promote the use of these fluid manures, since the steam engine raises the requisite supply of water, in most situations even from some depth below the surface of the land at a very small cost. The expense of procuring the water hardly presents a bar to its extended and profitable employment in irrigation.

The amount of water which an ordinary agricultural engine is capable of raising is much more considerable than is commonly understood. Suppose we have to raise the water from a stream to the highest part of a field—say, 10 feet above the level of the river—an ordinary engine would, by the consumption of one cwt. of coals, raise to this elevation about 700 tons of water—an amount of liquid equal to an inch depth on seven acres of land, or an average fortnight's rain in the southern and midland English counties.

WATER—ITS DIFFERENT QUALITIES AND EFFECTS.

Dr. Franklin used to observe that the only animals created to drink water were those which from their conformation are able to lap it on the surface of the earth. Although we do not rank under the banners of George Cruickshank and his total-abstinence friends, we are free to admit that there are seasons and localities when a cool draught of spring water is a very refreshing beverage; and no doubt the axiom of Professor Johnston may be admitted in its full extent, that the water we drink is next in importance to the air we breathe. It forms three-fourths of the weight of living animals, is the most abundant substance we meet with on the face of the earth, and covers to an unknown depth at least three-fourths of its entire surface. What with the drinking-fountains opened here and there in the metropolis and provincial towns by philanthropic individuals and corporate bodies, and the discussions now going on in the public journals as to the purity of water, the subject is making as much noise as the Great Eastern. Although it can scarcely be affirmed in the words of the ancient mariner, that there is "Water, water every where, and not a drop to drink," the subject is prominent, and not undeserving of a passing notice.

For instance, the metropolitan loungers and sightseers, and the thousands of visitors to the South Kensington Museum, are edified and enlightened by the sight of a dozen or more huge glass jars arranged by Dr. Lankester, containing specimens of Thames water, taken at various points from Southend to Thames Ditton, to show the influence of the sewage of London in rendering the water unfit for drinking purposes; and even the specimens of water from the comparatively pure surface wells of the parish of St. James, Westminster, show large quantities of organic matter. A man, we are told, must consume a certain amount of dirt in his lifetime; and whether it be contained in his food or his drink, we suppose matters little. But we certainly prefer to have it disguised.

Surface-well waters are most abundant in organic matter, which is derived from soaking through the soil, which is permeated with house drainage, &c. This organic matter arises to some extent from the decomposition of animal and vegetable substances, either growing in the water or cast into it; and when it putrifies, may render the water in which it is present very injurious, and even fatal in its effects. But yet, after all, may we not doubt the correctness of the popular idea that the maintenance of the health depends very much on the quality of the water. For example, we see all sorts of animals—herbivorous, graminivorous, and carnivorous—often supplied only from a green pool or horse-pond. In fact, such a place is usually preferred for the use of all domestic animals; and wild animals generally prefer stagnant pools. Man, too, though compelled to drink water of the most different qualities, yet does so without detriment to health. Some are compelled to drink what is called "hard water," and others "soft water"; and each comes to like that which he is accustomed to, and objects only to a change. The inhabitants of Suez prefer their own brackish, bitter water to the fresh water of the steamers, and yet it does not injure their health. The water taken on board ship, for the first fortnight or three weeks emits a putrid smell, from the death of insects and plants in it; and yet it does not produce sickness. The water in the neighbourhood of mineral or chalybeate springs is more or less tainted with the salts or gases which give those springs this peculiar taste; and yet the residents drink, and enjoy it. And even the mud-hole of Australia furnishes the only, and not an unwholesome, drink for aborigines and travellers in that country. Nay, more, we impregnate with the most deleterious gases water and other fluids intended for beverages and medicinal purposes. Thus soda-water, lemonade, ginger-beer, champagne, and ale, are considered good, just in proportion to the large quantity of carbonic-acid gas they contain. Many mineral waters, and their artificial imitations, contain sulphuretted-hydrogen gas, which gives them a smell of rotten eggs, and is the cause—when mingled with the atmosphere, and breathed—of the worst forms of fever on the coast of Africa and elsewhere. In like manner lime and iron (which all ordinary water contains) are administered medicinally in water.

The explanation of these facts is easy. What would be deleterious if breathed—that is, carried with air into the lungs—is useful when taken into the stomach, because the lungs are the organs for getting rid of such things after they have served their purpose in the body; whilst the stomach is the organ to receive them for the nourishment of the body. It may, then, be affirmed that pure water would be unwholesome—that is, water without the salts and gases which it generally contains; and for this reason—that the animal body requires for its proper nourishment lime, iron, sulphur, phosphorus, &c.; and in no form can these be presented to it so suitably, and in such infinitesimal dilution, as that in which they exist in water. Water may, however, become impregnated with these things to a degree in which it would, if drunk, be injurious to health; just as the atmosphere, which is generally in the fittest state for the support of life, may, from accidental or even natural causes, become overloaded with noxious gases. But as Providence has furnished the means of purifying the atmosphere by currents, rain, and heat, so also has Providence taken care that there shall be means for purifying the other essential—water. The earth is the great purifier, deodorizer, and disinfectant. As rain falls, it carries with it ammonia and other gases contained in the atmosphere. When it reaches the ground, it also mingles with the animal and vegetable matter it finds there, and holds much of it in suspension or solution. The water sinks through the surface, and, as it descends, is rapidly purified from most of this foreign matter by the earth, which thus acts as a filter. So rapidly does this purification or filtration take place, that little or no impurity passes farther than a foot or so downwards.

All rain-water does not, however, sink into the earth; a considerable quantity of it runs along the surface, carrying impurities of all sorts with it into streams, pools, and such receptacles. Here, then, it has to be purified for the use of the fish that inhabit the water, and of the land animals that drink it. This is done partly by the insects and other creatures that teem in all water, and immediately convert the dead animal matter it contains into their own living tissues, and partly by the vegetable life that universally pervades it. It is a popular error to speak of water, undergoing this two-fold process of purification, as being in a state of putrefaction; or to suppose that green, stagnant water is unhealthy. The fact is, that putrefaction is thus arrested, and the green colour is imparted by the luxuriant vegetation of the most beautiful and minute plants. These plants, too, are not poisonous, and therefore are drunk in with the water by herbivorous, graminivorous, and carnivorous animals, without detriment, as already noticed. The process is this: A pool, for example, is filled with muddy rain-water; the heavier impurities, sand, &c., subside, and in a few days the whole assumes a greenish hue by the germination of seeds of minute water-plants, which have the power of retaining their vitality (like the sporules of fungi on land) through heat or cold, drought or moisture, until the favourable and useful time for their development arrive. They then shoot forth into activity, and the intensity of their verdure depends upon the quantity of suitable nourishment they find in the water, just as the luxuriance and colour of cultivation depends upon the quantity of manure the soil contains. By degrees the pool becomes less and less green as the water is deprived of the nourishment it affords to the plants, until they die of inanition (as plants exhaust soil, and cease to flourish or live), and the water, if undisturbed or unreplenished by foreign matter, becomes transparent, and thus fit for the habitation of the higher orders of fishes, and the use of the highest orders of land animals, including man.

Speaking of the water we drink, in his "Chemistry of Common Life," Professor Johnston remarks: "In Nature, water is never found perfectly pure. That which descends in rain is contaminated by the impurities it washes out of the air; that which rises in springs, by the substances it meets with in the earth itself. In rivers the impurity of the water is frequently visible to the eye. It is often of a red colour as it flows through rocks of red marl which contain much oxide of iron in their composition; it descends milky from the glaciers of Iceland and the slopes of the Andes, because of the white earth it holds in suspension; it is often grey or brown in our muddiest English rivers; it is always brown where it issues from boggy lakes or runs across a peaty country; it is sometimes black to the eye when the quantity of vegetable matter is excessive, as in the Rio Negro of South America; and it is green in the geysers of Iceland, in the Swiss lakes, among the islands of the South Sea, and around our own islands, because of the yellow matters which it everywhere holds in suspension or solution."

While, we trust, we have in the foregoing remarks succeeded in removing some of the bugbears that are flouted about, to alarm the uninformed, respecting the impurities and unwholesomeness of water, there is no reason whatever why water intended for domestic use should not be freed or cleared from the grosser impurities with which it is charged, and rendered more agreeable to the eye. A ready method of obtaining a knowledge of the comparative organic impurities of water is the addition of the permanganate of soda or potash. This salt, which gives to water a beautiful red colour, is easily decomposed by organic matters.

When the same quantity of the permanganate is added to a series of waters containing organic matters, those which contain the least retain the most colour, and *vice versâ*. The passing water over iron has been found to have a remarkably purifying effect; and this has been patented by Dr. Medlock. The best remedy for impure water is filtering, which may be done by passing the water through charcoal and sand.

Man generally desires to gratify both the eye and the palate in drinking water, and therefore prefers taking the water from a well rather than a pool, whether green or transparent; hence he digs a hole in the earth, and thereby avails himself of this great natural filter; or, if necessary, he makes an artificial one. Still, however, the water contains the seeds of water-plants; for, from whatever depth it may be taken, it will, if kept in a bottle, become green in a few days. That it also contains living creatures in great abundance is manifested by the offensive smell which the best water shortly assumes, owing to their death and putrefaction when transferred from their natural place in a well to a jug or other vessel. But besides these, the water, however filtered, still contains the gases and salts which, as above explained, render it wholesome.

However useful the contact of iron may be in rendering water wholesome, lead is, on the contrary, most obnoxious; and the leaden cisterns in such general use in towns, unless occasionally scoured out, accumulate a vast amount of injurious deposit. This branch of the subject has lately occupied a large share of attention among medical men, and we notice that a very important paper by Dr. Lindsay, of Perth, "On the Action of Hard Waters upon Lead," was read at the recent meeting of the British Association, and which is published in *extenso* in the *Journal* of the Society of Arts. Dr. Lindsay's experiments tend to show that it is the soft or rain-water that has the most pernicious effect in decomposing the lead; hard waters being far less active in their operation upon the metal.

FEEDING OF STOCK AS A BRANCH OF FARM MANAGEMENT.

A lecture delivered to the members of the Highland Society during the Edinburgh Show week.

Dr. ANDERSON said: The feeding of stock, and its relation to the general management of the farm, is a subject of the very highest practical importance, and one of those in which definite information is most essential; and yet there is probably no branch of agricultural practice in which more difference of opinion exists; so much so, that while one class of persons believe it to be a highly remunerative department of farming, others with equal confidence maintain that cattle are chiefly valuable as mediums for the manufacture of manure. Even regarding details much doubt exists, and there are really but few points in which absolute unanimity exists. Looking at the magnitude of these differences, it was not without some diffidence that I ventured to select it as the subject of my address on the present occasion. Those matters, however, in regard to which doubts and differences of opinion exist, are, on the other hand, specially suited to discussion, for it is incumbent upon us to sift our information, and to ascertain what can be relied upon and what requires to be elucidated by further experiment. When this is done, it appears that there are many points on which we are very imperfectly informed, and others on which statements of the most conflicting nature have been made; and the difficulty of drawing conclusions is enhanced by individuals maintaining the exclusive excellence of the systems they themselves practise, and insisting that, because they have been led to adopt a particular opinion, their neighbour who holds the opposite one must necessarily be wrong. A great point is gained when we admit that both may be right, and when we set to work cordially to trace out the cause of the discrepancy. All branches of agriculture are now going through this phase of their existence, and principles are being gradually established. The feeding of stock is exactly one of those subjects which can be most successfully advanced by studying the principles on which it depends; and, though these involve many most complex chemical and physiological questions, we have obtained some foundation on which to go. The food which an animal consumes is partly assimilated and partly excreted; but, if it be properly proportioned to its requirements, its weight remains constant, and hence we learn that the food does not remain permanently in the body. If, now, an animal be deprived of food, it loses weight, owing to the substances stored up in the body being used to maintain the process of respiration and the waste of the tissues. The course of events within the body is, so far as known, somewhat of this kind: the food is digested, absorbed into the blood, and deposited in the form of flesh and fat in the body, a certain quantity being consumed to support respiration. If the food be properly adjusted to the requirements of the animal, its weight remains unchanged; the quantity absorbed and that excreted exactly corresponds to one another; but, if we increase the food, a part of the excess will be deposited in the tissues and add to its weight. Now the quantity absorbed depends upon the state of the animal—a lean beast thoroughly exhausting its food, while when it is nearly fat it takes only a small proportion. So, likewise, if the quantity of food be greater than the digestive organs can well dispose of, a certain quantity escapes digestion altogether, and is practically lost. The problem which the feeder has to solve is, how to supply his cattle with such food, and in such proportions, as to ensure the largest increase with the smallest loss. In solving this problem we must, in the first place, consider the general nature of the food of all animals, the constituents of which may be divided into three great classes; the nitrogenous matters, which go to the formation of flesh; the saccharine and oily, which support respiration and form fat. It is sufficiently obvious that as the two great functions of nutrition and respiration must proceed simultaneously, the most advantageous food will be that which supplies them in the most readily assimilable forms, and in proper proportions. In regard to the first of these matters, it will be obvious that if two foods contain the same quantity of nutritive matters, but in one they are associated with a larger quantity of woody fibre or other non-nutritious matter, the latter will have considerably less value than the former. The necessity for a proper balance of the two great classes of nutritive constituents is also sufficiently obvious; for if, for example, an animal be supplied with a large quantity of nitrogenous matters, and a small amount of respiratory elements, it must, to supply a sufficiency of the latter, consume a much larger quantity of the former that it can assimilate, and there is practically a great loss. We may determine the proper proportion of these substances in three different ways: 1st, we may determine the composition of the animal body; 2nd, we may examine that of the milk, the typical food of the young animal; and 3rd, the results of actual feeding experiments may be examined. The composition of the animal body is a subject on which, as it appears from the recent experiments of Lawes and Gilbert, great misapprehension has hitherto existed. It has always been supposed that by far the larger proportion consisted of nitrogenous matters; but that is quite an error, and, even on lean animals, the fat greatly preponderates over the lean. A lean sheep, for instance, contains one and a half-pound of fat for every pound of dry nitrogenous matter, and when very fat it may contain six times as much fat as lean. The inference obviously is that the food must contain a very large quantity of non-nitrogenous matters. The milk, which contains a number of each of the three great classes of nutritive matters, also affords us instruction, although, of course, more especially as regards the feeding of young stock, when the conditions are different from those existing in the mature animal. But, however valuable the data derived from these experiments may be, they are less important than those derived from actual feeding experiments. In fact, it by no means follows that the proportions in which the different substances are found in the animal are exactly those in which they ought to exist in the food. On the contrary, it appears that while one-tenth of the saccharine and fatty matters are assimilated by the animal, only one-twentieth of the nitrogenous compounds, and one-thirty-third of the mineral substances in the food, are assimilated by the animal. On the other hand, however, it must be remembered that the particular compounds also exercise a very different influence. Thus a pound of fat in the food, when assimilated, will produce a pound of fat in the animal; but it requires about two and a-half pounds of sugar or starch to produce the same effect. The broad general principle arrived at is, that we must afford a sufficient supply of readily assimilable food, containing a proper pro-

portion of each class of nutritive substances. But there are other matters also to be borne in mind, for the food must not only increase the weight of the animal, but also support respiration and animal heat; and the quantity of food required for this purpose is large. It appears, from Boussingault's experiments, that in a cow eighteen ounces of nitrogenous matters are required to counterbalance the waste of the tissues—a quantity contained in about ten or twelve pounds of wheat flour; and it is well known that an ox expires four or five pounds of carbon daily, to supply which one hundred pounds of turnips are required. We see from this the large quantity relatively to that used up which is required for the maintenance of these functions, and the importance of adopting such measures as, by restraining them within the narrowest possible limits, produce a saving of food. The diminution of muscular exertion, and keeping the animals warm, so that a small quantity of food may be required to act as fuel to maintain the animal heat, are the most important considerations. Although the presence of a sufficient quantity of nutritive matters is an essential qualification of all foods, their mechanical condition is not unimportant, for unless its bulk be such as to admit of the stomach acting upon it properly there must be an appreciable loss; and there is no greater fallacy than to suppose that the best results are to be obtained by the use of those which contain their nutritive matters in a very small bulk. As a practical question, the principles of feeding are restricted to determining how the staple food produced on the farm can be most advantageously used to feed the cattle kept on it, and on this point much requires to be said. It appears that they can be best made use of when combined with more highly nutritious food, such as oilcake or rape; and when this is properly done, a very great advantage is derived. It appears from experiments that sheep, which, when fed on hay only, attain a weight of ninety pounds, reach a hundred when rape is added. The subject cannot be completed without referring to the value of the dung produced, which has been very variously estimated. The experiments referred to in the course of the address appear to show that, of food generally, about one-third to one-fourth of the money value, and seven-eighths of the valuable matter, appear in the dung. Dr. Anderson concluded by saying, that he had by no means attempted to exhaust the subject, but had given only a sketch, trusting that the observations of others might fill up the details.

THE HEREFORDSHIRE AGRICULTURAL SOCIETY.

MEETING AT HEREFORD.

There was rather a determination of the body agricultural to the Great Western line in the early part of last week. On Tuesday, Oct. 18, the editor of one of our national herd-books was poising his glass over the heads of certain well-bred stock at the Swindon Station. On the very same day, a little further on, the editor of another herd-book was flourishing his baton as the director of an agricultural meeting. Each of course was associated with his own favourite breed. Mr. Strafford sold Shorthorns, and Mr. Duckham placed Herefords; and never did men keep their line more religiously. One of the white faces would have been no more out of place in the Uffcott catalogue than a Durham would have been in the Hereford cattle-market. And this same cattle-market had a double duty to perform. On the one day it was the show-ground of an agricultural association, and on the next, more legitimately, the focus of a great cattle-fair. The two, however, are very intimately connected. In fact, the show and the fair both in reality open to the public at the same time. On the Wednesday morning all the main streets of the city were crowded with beasts, salesmen, breeders and buyers. Nowhere else could such a scene be commanded. It was one continual throng, or drove, or group of cattle, but all of the same uniform stamp and character. To the stranger, indeed, it became somewhat of a question whether, if an animal did break away from his own lot, his owner would ever be able able to again identify him? At almost as early an hour an exhibition of precisely similar constituents was opened under the auspices of the Society. It was still the well-known red-and-white beast, with his fine frame, famous forehand, good touch, noble head, and placid eye. But any uniformity, at least of excellence, closed here. It was generally declared that there were *fewer* good animals in the fair and *more* in the show than was ever known before. The breed as a whole was badly represented, worse than it has been for many years past; while, on the other hand, the individual specimens of the sort were as manifestly superior. So apparent a paradox is yet susceptible of some explanation. The Hereford cattle fairs, we fear, are gradually becoming something very much on a par with the great Yorkshire horse fairs. That is to say, the best part of the fair is over before the fair begins. Men have their agents, who go round and pick up the choice lots for weeks previous. It is well known that some of the leading salesmen have been doing so this season, and even "the remainder" have come more and more into the hands of the dealers. It may be argued, of course, that the Herefords are looking up when so much anxiety is evinced to obtain them, and certainly the result of this year's fair went far to confirm any such impression. Moderate as was the sample offered on Wednesday, it is long since better prices were commanded. But the midland counties men, who come to buy for themselves, shook their heads dubiously, and only trusted the markets would continue to warrant it.

But we have turned up our trousers, and gone unscathed amongst these mild-eyed, good-tempered, pale faces; although crowding and elbowing each other at every step. That fine-spreading horn, if you do discover it arm-in-horn with you, has no notion of wrong. This poor bewildered steer would rather get out of your way than into it; and that group of martyrs are sighing only for more room and quiet in the flying pastures of the Shires. Let us not add to their discomfort by handling, or drawing, or crabbing them; for we are really not buyers to-day, and if we do put a hand in our pocket, it is merely to pay our shilling and see the show. It is fair time; so walk up, if you please, and see the lions! and we walk in accordingly to see —more pale faces, more fine spreading horns, more of the venerable ox-eyed expression that the poet of old paid as a compliment to his goddesses. If one went to Newmarket to see horses, or to Chiswick for flowers, or to Lewes for Southdowns, one as assuredly goes to Hereford to see Herefords and nothing else. The Hereford show is essentially a show of Herefords. There was not a beast of any other breed in the yard, and it would certainly have been a more complete, a better, or a more perfect exhibition, had there been nothing else to see. But there were classes for sheep and for pigs and for horses, not one of which was up to the average merit of a county show. The sheep included a few fair Cotswolds, some dark-faces, and dubious Shropshire downs, and more crosses with the old favourite Ryeland sheep of the district. There was not a really good horse in the entry, and only two cart-stallions shown, with as rough a lot of mares as could be reasonably collected. Then the fame of Herefordshire and Shropshire, as the nursery-ground of good hunters, must be surely fast dying away, as we were told it is. Farmers no longer ride and then breed from the seventy or eighty guinea mare they once had such a pride in, and poor Mr. Vevers has been dead some years. The judges must have had a curious estimate of a clever hack-mare to distinguish the animal they did, but honestly they had not much to select from. They were happier in their choice of the three-year-old hunting-filly, and had the courage to withstand the mere condition shown against her. Her chief opponent, however, had a pedigree good enough for a Derby winner; but she had all the better of him in the matter of looks and promise. The pigs might have been all put into a parish pound, and there were some of them hardly worth taking out again if they only once did get there. But the prize Hereford stock—that was the point. If they were but a rough lot in the fair—if we could never depend upon them at our great national meetings, but found just a few one year and scarcely any the next—if they actually had been improving of late—as some people said—and if it was really worth while for Mr. Duckham to persevere with the herd-book—here must be the proof: and here, too, *was* the proof. The home-breeders themselves confessed they had never known such a show of them before; and certainly, with all our experience of the Shorthorns in Yorkshire, and the Devons in their own native county, we never witnessed a distinct race of animals, exhibited in such numbers, with so much uniform excellence, and general characteristics of their kind. The strength of whole herds, moreover, was called for. There was scarcely an exhibitor that depended upon any one picked animal or so. The very rules and conditions of the Society are somewhat peculiar in this respect. It offers a series of premiums not merely for a bull, but for a bull, a cow, and their *produce*, all in one entry. It stipulates for breeding cows to be shown in lots of twos, threes, fours, or fives, according to the sizes of a man's holding. Feeding beasts are got together in the same way, and there are prizes for "pairs" of heifers and steers of every possible age they could enter at. Indisputably, there never was a fairer way of testing what a herd, or even a breed was equal to. Still, if an exhibitor had but one animal or so, he cared to send, there was every opportunity for him; and Mr. Hill showed Claret in this wise, as did Lady Emily Foley her fat cow. The demand, however, for numbers was readily responded to. In the opening or "Happy Family" class of father, mother, and child, there were no less than nine entries, every one of which was commended. That staunch friend to the Herefords, Lord Berwick, took very becomingly the first place with Severn, the second prize bull at Warwick, his companion Beauty (well named) having also been the second cow at the All England Meeting. Then another nobleman, Lord Bateman, had the third honours with the even better known Carlisle, shown in more workmanlike order than he hitherto has been; but the lovely Thais by his side was terribly out of form, or the two might have been further distinguished. The other trios were not so celebrated, at least out of the neighbourhood, but they well merited the passing compliment paid them, and it is a question whether other societies might not adopt so interesting an illustration of a breed or a herd. It took amazingly here. The other more famous animals came naturally in the all-aged class, where Mr. Williams' Sir Colin and Mr. Hill's Claret met once more. The latter was the conqueror at Chester, Warwick, and at Hereford last year; but Sir Colin has now the turn, and beat the "black 'un" at Ludlow very recently, as well as on their present meeting. There is no doubt the colour of Mr. Hill's bull goes against him with those who stand up very legitimately for the points, and, as we noticed when we last saw him, he is growing patchy. Sir Colin was clearly the favourite here, and he is certainly a very grand beast, with a beautiful line along the back, and as level as a die. But, like his opponent, he does not look so well from behind, although the fault be not quite in the same place. He stands "in" a bit, and rather droops in the carcase. Clearly the grandest, handsomest, and the bull of the highest Hereford character, was Lord Berwick's Severn, which stood above Sir Colin at Warwick, but only next to Claret. The one strong class of the show however, was that of the yearling bulls, of which there were no less than three-and-thirty entered; Mr. Price sending five, Mr. Rea, of Westonbury, five, Mr. Turner three, Mr. Perry two, Mr. Williams two, and Lord Berwick, Lord Bateman, Mr. Clive, Mr. Hill, and Mr. Duckham being also amongst the exhibitors. The judges made one of the youngest of the lot the first prize, and put Mr. Perry with another Goldfinder second to him. They had both numerous admirers, and Mr. Price's is very high-bred in appearance. But both the public and the judges commended the whole entry, and there were continued nibbles and bids for something or other, the Australians through their agents Messrs. Cardwall and Strafford, evincing far more desire than usual to have something good. Mr. Coleman was also a ready buyer for his Grace the Duke of Bedford, and sixty, seventy, and so on were offers that might have been commonly had. Mr. Cardwall ultimately secured Mr. Price's prize yearling for something over a hundred and twenty, and another unnoticed one of Mr. Clive's for eighty. But it was in the next section of two-year-old bulls, that the value of the Herefords came to be appreciated. The two o'clock sale on Wednesday certainly opened very languidly; but the appearance of the deep, weighty, fleshy Salisbury did much to revive it. There were many ready to go to beyond a hundred. At twice that, the auctioneer took off his hat and gave a cheer, eventually dropping his hammer to Mr. Price, of Pembridge, at two hundred and twenty-five guineas. Salisbury was second best at Warwick, and Leominster, the second to him here, third. In fact, in the heifer and some other classes the "Royal" awards were very generally confirmed. The first prize two-year-old Hereford at Warwick, Mr. Naylor's Adjutant, was "bound" straight from there for Australia at three hundred and fifty; so that Salisbury, by any estimate, still ranks only as next best to him.

The heifer pairs were quite worthy of the young bulls, and the judges commended the classes of both yearlings and two-year-olds, in which Lord Bateman, Mr. Price, Mr. Clive, Mr. Rea, Mr. Turner, and Mr. Williams had some beautiful things. Mr. Price's pair of two-year-olds were amongst the "picks" of the show, with lovely heifer heads, as beautiful bosoms, famous backs, and that "fleshy" handling a Hereford man appreciates so much. Then there were whole ranges of breeding cows exhibited in honest useful condition, and in themselves quite a sight to see. There were nine competitors for the twenty pounds which the good citizens of Hereford made offer of; and Mr. Goode sent five, Mr. James Davies six, Mrs. Turner seven, Mr. Hewer two, the Rev. Mr. Clive *twenty-two*, Mr. Rea six, Mr. Thomas Davies eight, Mr. Price, of Pembridge, five, and Mr. Taylor eleven, each in accordance with his acreage. The judges placed Mr. Rea first, Mr. Price second, and highly commended the whole lot of over seventy! So much to the credit of the breeders, and they all looked as if they did breed. But then, alas! the Chairman of the dinner declares they will not milk. "It will take some time to 'develop' his premium for the best milch cow," and this year against the seventy-two breeders, there were only three milkers entered, and these, by two exhibitors—Mr. Price and Mr. Duckham. Is this the weak place in the Herefords after all? And are we only to see a Hereford cow in perfection, when she is fed up like that extraordinary one of Lady Emily Foley's? Seldom has any animal united *immense* size with so much beauty and symmetry. She has a really perfect head, and to stand by, either for the evenness with which she has fed, or the ground she covers, this is really a wonderful cow. If anything she is hardly *thick*-fleshed enough for some of the connoisseurs; but our readers will have the opportunity of judging for themselves, as her Ladyship has entered her prodigy at both Birmingham and the Smithfield Club.

It is only within the last few years that the Herefordshire Agricultural Society has assumed anything of that fitting influence and importance it now enjoys. The meeting long struggled on as a merely local gathering, or indifferent "tag" to the fair itself. The association owes much of its present position to the fostering care of that excellent county paper the *Hereford Times*, backed by the judicious direction of Mr. Duckham, and the services of a committee of practical men. The very vice-presidents are farmers and breeders in the county. Almost contemporaneously with an improvement in the society has been that in the stock. The leading London salesman of the day told us here that for the last three or four years he had noticed a much better sort of Hereford, while our own experience goes to date an advance to very much about the same period. In somewhere about 'fifty-five the breed really appeared to be going quite out of fashion, that is as national prize stock; but since then there has been a considerable reaction. The white faces and early maturity have been the great thing aimed at. However successfully this has been achieved, it has been obtained, in the opinion of some sticklers for former times, at the loss of much of that thick or heavy flesh which so pre-eminently distinguished the mottle-faced tribes. Indeed, perhaps, after all, the old Hereford was the grander beast of the two, providing always you gave him "time" to develop and furnish. But that is just what at present we don't do, and with "quick returns" as our signal cry, people can scarcely now afford to wait for him.

The dinner of the Society had only one drawback: it was laid in a room far too small for the occasion, and many were unable to find seats. Under such circumstances a company soon gets noisy and uncomfortable; and with the many more available buildings in the city this should not occur again. Nevertheless, the after-dinner talk was some of the best we have heard this season. It was business-like and practical, and promises even of itself to do something towards improving the district. From a report further on, it will be found that amongst the topics touched on were the breeding of stock, the making of cider, the lodging of the labourer, and the enlargement of the sphere of the Society's action. Famous as we have always supposed Hereford to be in this way, it appears that the art of brewing good cider has been gradually more and more neglected. A glass worth drinking is quite "out of the common;" and certainly, what we tasted had all the sharpness, and none of the soundness, of the real rough cider. However, Mr. Allen and the Essayists are going to amend this. But they must set about it at once, for Mr. Wren Hoskyns is specially retained to bring the Royal Agricultural Society of England to Hereford in the course of another year or two; and if we do not get plenty of good sound cider by then, the character of the county will be gone for ever.

PRIZE LIST.

HEREFORD CATTLE.

Judges.—E. Longmore, Adforton, Ludlow.
H. Higgins, Woolaston Grange, Lydney.

Bull, Cow, and their Offspring; the offspring to be bred by the exhibitor.

First prize of £25, to Lord Berwick, Cronkhill, Shrewsbury (bull Severn, cow Beauty, calf Sabrina).

Second of £10, to Thomas Morris, Therrow, Lyswen, Hay (bull Druid, cow Miss Noble, calf Rifleman).

Third of £5, to Lord Bateman, Shobdon Court (bull Carlisle, cow Lady, calf Warwick).

The class commended.

Bulls calved on or after the 1st of July, 1858.

First prize of £20, to Edward Price, Court House, Pembridge (Sir John).

Second of £10, to William Perry, Cholstrey, Leominster (Goldfinder the Second).

Third of £5, to the Rev. Archer Clive, Whitfield (Cefnesco).

The class highly commended.

Bulls calved on or after the 1st of July, 1857.

First prize of 5 guineas, to William Perry, Cholstrey (Salisbury).

Second of £3, to Thos. Edwards, Wintercott (Leominster).

Commended.—C. Vevers, Ivington (Stratagem); and W. Taylor, Showle Court (Fancy Boy).

Bulls calved previous to the 1st of July, 1857.

First prize of 5 guineas, to John Williams, Kingsland (Sir Colin).

Second of £3, to Richard Hill, Golding, Salop (Claret).

Commended.—E. M. Power, Hill Court (Uncle Tom).

To the tenant-farmer who exhibits the best lot of beasts, bred by himself, and fed without corn or cake, under two years and six months old, in proportion to the quantity of land he occupies.

The tenant of 100 acres, two beasts.
„ 200 acres, four beasts.
„ 300 acres, six beasts.

The prize of 5 guineas to George Pitt, Chadnor Court, Dilwyn (over 300 acres); 6 heifers.

Pairs of Heifers, calved on or after the 1st of July, 1858.

First prize of 5 guineas, to Lord Bateman.

Second of £3, to Edward Price, Pembridge.

The class commended.

Pairs of Heifers, calved on or after the 1st of July, 1857.

First prize of 5 guineas, to Edward Price, Pembridge.

Second of 3 guineas, to the Rev. Archer Clive.

The class highly commended.

Pairs of Steers, calved on or after the 1st of July, 1858.

First prize of 5 guineas, and second of £3, both to George Pitt, Chadnor Court.

Pairs of Steers, calved on or after the 1st of July, 1857.

First prize of 5 guineas, to Lord Bateman.

Second of £3, to George Yeld, Twyford.

Pairs of Steers, calved on or after the 1st of July, 1856.

First prize of 5 guineas to Lord Bateman.

Best four Steers, calved on or after the 1st of July, 1856, bred by one person, and to be the property of the exhibitor at the Hereford May fair, 1859.

The prize of 5 guineas to J. H. Arkwright, Hampton Court.

Best lot of Breeding Cows or Heifers, not under three years old, that have had a calf within six months, or shall be in calf at the time of showing.

The occupier, if not exceeding 100 acres, to show two beasts
„ „ „ 150 acres, three beasts.
„ „ „ 200 acres, four beasts.

And in the same proportion for every additional 50 acres

First prize of £20, to Thomas Rea, Westonbonry (295 ac six cows.

Second of £5, to Edward Price, Pembridge (205 acr five cows.

The class highly commended.

Fat Cows, of any age.

The prize of 5 guineas, to Lady Emily Foley, Stoke, (Young Nutty).

Highly commended.—T. Roberts, Ivington, Bury

Milch Cows, of pure Hereford breed.

The prize of 5 guineas, to Edward Price, Pembridge (

SHEEP.

Judges.—G. Bright, Broom, Aston-on-Clun.
J. Price, Penalt, Ross.
(And for horses and pigs.)

Pens of twenty Shropshire Down, or Short-woolled Breeding Ewes, under three years and eight months.

The prize of 5 guineas to J. B. Downing, Holm Lacy.

Highly commended.—T. Roberts.

Pens of Twenty Long-woolled Breeding Ewes, under three years and eight months.

The prize of 5 guineas to Jonathan Davies, Webton Court.

Pens of four Yearling Wethers, long-wool.

The prize of £3 to Jonathan Davies, Webton Court.

Highly commended.—C. Kearsey, Glewstone.

Pens of four Yearling Ewes, long-wool.

The Prize of £3, to Jonathan Davies, Webton Court.

Pens of four Yearling Wethers, short-wool, cross-breeds not excluded.

The prize of £3, to Thomas Roberts, Ivington, Bury.

Commended.—J. E. Tomlinson, Whitlock.

Pens of four Yearling Ewes, short-wool, cross-breeds not excluded.

The prize of £3, to Thomas Roberts, Ivington, Bury.

Commended.—J. B. Downing; and R. Biddulph, Ledbury.

PIGS.

Boars, under two years of age.

The prize of £3, to Sir Velters Cornewall, Bart., Moccas.

Commended.—C. Kearsey.

Breeding Sows.

The prize of £2, to Sir Velters Cornewall, Bart.

Highly commended.—Lady Emily Foley.

Commended.—R. Cox, Ludlow.

HORSES.

Cart Stallions.

The prize of 5 guineas, to F. Blakeley, Penrhos Court, Kington (Barton.)

Highly commended.—J. Theyer, Walford, Ross (Young Havelock).

Cart Mare and Foal at Foot.

The prize of 5 guineas, to Benjamin Parry, Bredwardine (Darby).

Three-years-old Colts, Geldings, or Fillies, for hunting purposes.

The prize of £5, to Thomas Smith, Lodge Farm.

Nag Mare with Foal at Foot.

The prize of 5 guineas, to George Pye, Cublington, Madley (Brown Bess).

Highly commended.—J. H. Arkwright (Polly).

EXTRA STOCK AWARDS.

Edward Price, Pembridge, for bull (Goldfinder the Second).

Edward Price, Pembridge, for seven Breeding Cows.

Rev. A. Clive, Whitfield, for two-year-old Steer.

Jonathan Davies, Webton Court, for Ewe.

John Wigmore, Weston-under-Penyard, for ten cross-bred Ewes.

Richard Cox, Ludlow, for two breeding Sows.

Ch Holmer, for riding Gelding (Folly).

Bartestree; for thorough-bred Stallion

HEAT.

Wheat, grown by a tenant-
of Hereford.
Weston-under-

IMPLEMENTS.

The best and largest collection of IMPROVED AGRICULTURAL MACHINERY AND IMPLEMENTS.

First prize of 5 guineas to Felix Smith, Upton Bishop, Ross.

Second of £2, to S. A. & H. Kell, Ross and Gloucester.

Commended.—J. L. Stephens, Hereford.

Special prize of £1, to Isaac James, Tivoli, Cheltenham; for Water Cart, Pump, two Washing Machines.

THE DINNER

Took place at the City Arms, Mr. Charles Wms. Allen, of the Moor, Kington, as President of the Society, in the chair, supported by the High Sheriff, Richard Yapp, Esq., of Cradley; Lord Llanover; Mr. J. King King, M.P.; Lord Wm. Graham, M.P.; Mr. Humphrey Mildmay, M.P.; Col. Clifford, M.P.; Mr. George Clive, M.P.; Rev. Archer Clive, M.P.; Mr. R. Biddulph; Mr. Chandos Wren Hoskyns; Mr. T. Duckham; Mr. Price (Pembridge); Mr. Perry (Cholstrey); Mr. Hill (Golding); the Judges, the Stewards, and the principal agriculturists of the county.

After the customary loyal toasts,

The CHAIRMAN gave—"The County Members."

In responding, Mr. KING KING referred to the great deficiency of hands on the farm, and the consequent high wages which were demanded during the late harvest in this country. There could be no question that there was a deficiency of hands in this county. In many places, the regular cultivation of the farm had suffered by the scarcity of those hands which the farmer would wish to engage. There was a discussion at Leominster the other evening, rather too late in the evening to allow of an answer; but from that discussion it appeared that there could be no doubt, in certain parts of the county, there was a great deficiency of good cottage accommodation. And the excellent Chairman at Leominster said that, in his opinion, a certain number of cottages per 100 acres were necessary. He had so often heard this question discussed, that he had recently turned his attention to it. The worthy and practical Chairman at Leominster said that, in his opinion, at least three cottages were necessary to every 100 acres; but he (Mr. King) believed that, if there were about two to that extent of land, the labourers would get on very well, and be much better off than at present. He would take it for granted that the labourers would not all have families; and some of those cottages would possess accommodation for labourers and lodgers; and in many of the rambling old farmhouses there was room for some of the labourers to reside. Let them, instead of talking so much about it, unite their efforts in improving cottage accommodation. It was a subject of arrangement between landlord and tenant; but he thought, if there was the number of cottages per 100 acres he had mentioned, things would go tolerably well.

Lord WILLIAM GRAHAM had to congratulate them on
the manner in which the harvest had bee
year, though he must corroborate
colleague, that there was in
bourers and a want of hands:
opinion, he did not see
likely to dim
poses of
ment
to

labourer, who was well paid and well fed, did more labour than an unskilled labourer who was ill-fed and ill-paid.

Mr. H. MILDMAY, the third County Member, however much he might rejoice in the prosperity of the county, could not but regret that the improvement in agriculture did away with some of the hedgerow timber and the beautiful broad hedges which now formed one great feature of Herefordshire: he supposed that modern improvement must go on, notwithstanding. However, as long as the apple orchards, the oaks, and the rich pastures remained, Herefordshire could never be otherwise than beautiful beyond all other counties. The increased use of machinery in the agricultural districts was one feasible way of supplying the defect arising from the scarcity of labour; and this must be beneficial alike to the farmer and to the agricultural labourer, for, if delicate machinery was to be used, they must raise up an intelligent class of labourers to superintend it, as, however active and industrious a master might be, he could not be everywhere at once, and must therefore be supported by active and intelligent servants; but they would never be got to a high condition unless they were well paid. The first and most important consideration was, to improve the labourers' cottages, as that would not only be beneficial to the latter, but also advantageous to the landlord. The increased habit of comfort would produce more respectability in the labourer, and would lead him to habits of saving which would prevent his becoming chargeable upon the rates on every sudden emergency. He objected to the evil tendency of the hirings at fairs, and submitted that, as these fairs had been dispensed with in other parts of England, it was quite possible to do without them in Hereford. The third means of improving the condition of the labourer was by educating the children. The more intelligent a man was, the more valuable his labour was; and in proportion to the progress of education would the character of the labourer be raised. The clergy, gentry, and farmers might do much to promote the education of the labourer—indeed, he believed that no system of education could be effectually carried out for the agricultural labourer, unless the farmer used his influence with those in his employment to send their children to school. However, there was certain work on the farm that must be done by children—for instance, the farmer could not afford to employ grown men for bird-keeping; but what he (Mr. Mildmay) suggested was, that some boys should not be kept constantly at work, but that they should be relieved by others on some days of the week, so that all might have an opportunity of attending school.

The PRESIDENT next proposed the health of the "Members for the City of Hereford." He was sorry that Colonel Clifford, the senior member, had left the room, for he should like to have told him that he (the president) served many years under him when the hon. member was chairman of the Quarter Sessions, and had the pleasure of frequently approving of his mild ruling. The president congratulated Mr. Clive on the position he occupied as representative of that city, and observed that, connected with the two great leading
olitical parties in the country, there was a very remarkable
rcumstance, and one of which Herefordshire ought to be
oud; no matter whichever party was in power, it appeared
t it could not make up an Administration without a Here-
shire member (cheers). Were the Conservatives in power,
talented member for Leominster was sent for; were the
ent respected Ministers in power, they could not get an
r-Secretary of State without sending to Hereford for
ughter and cheers). It was usual for a president at that
's dinner to announce who his successor was for the
year, and he was very happy to tell them that Mr.

George Clive had kindly consented to take that office for the next year (cheers).

Mr. GEO. CLIVE, M.P., in answer for the city members, refering to his acceptance of the office of president of the Society for the ensuing year, said he hoped at any rate they would all then attend, if it was only to see how badly the duty was done. He could not help reverting to the last time he dined in that room, which was some twenty-five years ago. Very few of the faces now around him were in the room then. Comparing the state of agriculture in this county generally, though much was owing to the progress of intellect, education, and civilization generally, he could not help thinking that much of the improvement had been brought about by the operation of this Society. There was no profession which so much needed stimulus and competition as that of agriculture. In other professions, competition works out good results. If a merchant sells bad goods, he is not employed any longer; if a lawyer ruins his client, or hangs him, he loses his connection. If a clergyman—and he wished to speak with due reverence of the body—preaches uncommonly dull sermons, his attendance gradually diminishes. But up to the time when these societies were instituted, there was no mode in which the agriculturists could compare their mutual produce; and men might live on small farms in remote districts, and breed such animals as they saw twenty-five years ago, with high rumps, narrow hips, straight shoulders, and big heads ("No, no.") A man might get his daily bread by farming in that way, but make little or no progress; and there was no means by which he could institute comparison between his own state and that of others until these societies were established. They might not extend very rapidly to the remoter parts of a district, but they could not have other than a healthy result to the community at large.

The PRESIDENT returned thanks for the honour they had done himself, and should like to refer to one or two of the prizes that had been offered. He told the committee, when he was appointed president, that he should give the prize which had that day been competed for, for the best essay on the production and making of cider. There was another prize he was extremely anxious should be made a subject of competition, but it would take three years to try it, and at his request the committee had kindly pledged themselves to continue the premium for two years more, in order to test the value of that prize. He alluded to the prize which had been offered for the best milch cow. A similar prize, which had been offered by his late valued friend, Mr. Penoyre, had been a total failure, for his prize for a cow in calf or milk had very soon resolved itself into a prize for the best fat cow. The terms of his (Mr. Allen's) prize were for the best milch cow of the pure Hereford breed; and he hoped that the question would be discussed. He considered that it was of the greatest importance that we should improve the milking qualities of the Hereford cow. The Earl of Oxford once declared that he would engage to make a Hereford cow yield as well as a shorthorn. There could be no doubt the milking qualities of the Hereford cow might be very much improved; by what means must be decided by time and trial. He was sorry to see the small number of competitors, and he hoped after this little explanation there would be more competitors. The other prize to which he desired to allude was for the best essay on the management and making of cider. His friend, Mr. F. Thomas, liberally and kindly gave a prize for the best hogshead of cider, and he (Mr. Allen) prophesied that which had turned out exactly true, that there would be very few competitors. The knowledge and practice of making first-rate cider in that county was in rather few hands, and in consequence of that fact it turned out as he anticipated, that there were very few competitors for that prize. He liked a glass of cider; and he hoped that if next year any gentleman should liberally give a prize for the best hogshead of cider, that there would be more competitors—he should like to be one—and that they would study a little more the doctrine of cider-making. To his great surprise, the committee asked him to decide his own prize; but he thought that was one of those things which would be done very much better by others. He represented that there might be some suspicion attaching to the award, but the committee would not hear of it. But he determined that, whether he acted in conjunction with the committee or with other gentlemen, his own judgment should not decide the award. Two of the essays he read over six or eight times, and made analyses of several of them. He called in several gentlemen to assist him. Two or three of the essays were very near in point of quality, but the balance of opinion was decidedly in favour of the essay to which the prize was awarded. The copyright belonged, of course, to him who wrote it, but he hoped arrangements would be made for its publication. He discouraged the use of scientific terms, because plain language conveyed all the information they desired; but it might not be advisable to exclude it altogether, as no one would deny that the doctrine of cider-making depended on chemical considerations. There were eight competitors, and four of the essays were very good. He should, therefore, be very glad if the writers of the unsuccessful essays would allow portions of them to be used for the purposes of publication; and he would himself, or he would endeavour to prevail upon the committee, to construct some formula of useful hints, which would come before the county in addition to the essay which had won the prize. He had had a glass of the prize cider. It was really a splendid specimen, and made him regret that a beverage of such a quality should not be found more generally in the county.

Mr. R. BIDDULPH said: Touching the cider question, he believed that, from some cause or other, for some years past the cider of this country had not attained that perfection it used to do. They made the same quantity—indeed he believed they made a larger quantity than in years past; still they did not succeed. He therefore thought they were much indebted to Mr. Allen for having offered so large and handsome a prize for an essay, and he (Mr. Biddulph) felt sure that, when it was published in a cheap form, that it would be of great benefit to cider-makers. Although he was one of those who inveighed against the abuse of drink, he was very fond of a glass of good cider; and he moreover believed that, when the county of Hereford should become intersected by railways, they would find very great demand for it, and that it would become a great source of revenue. There is even now a very large quantity of cider sent out of the county, which realized a vast deal of money. It seemed to him a very singular circumstance, that at dinner, when he, with Mr. Clive, asked for some cider, and they had it brought to them, it was not such as they could drink. They then asked for bottled cider, but there was no such thing to be had. Was it not singular that in a large inn, in the metropolis of the county so celebrated for its cider, when it was asked for it was not to be had? The county was much indebted to Mr. Thomas and Mr. Allen for the prizes they had offered, which no doubt would have a result very beneficial to its inhabitants. If such a prize should be offered again, he would suggest that it should be at the option of the committee to purchase the cider, so that they might all have the pleasure of tasting it. He congratulated the county upon the show of that day, which was undoubtedly the best show of Hereford cattle ever seen. A very few years ago the quantity of stock exhibited was small, and he attributed the excellence of that day's show to the result of the exertions of the committee and gentlemen associated with them. It was his (Mr. Biddulph's) good fortune on the previous day to be with the gentleman who inspected Lady Emily Foley's estates for the prizes which her ladyship offers for the best cultivated farms on the Stoke Edith property. He was not going to make any remarks upon it, but he must say that he never saw a better cultivated estate in his life; and he therefore congratulated both her ladyship and her tenantry upon the very superior display of agricultural knowledge evinced by the admirable way in which the estate was cultivated. Mr. Biddulph concluded by giving the health of the Rev. Archer Clive, and The Committee.

The Rev. W. P. Hopton remarked that he had received a commission from an Australian merchant to purchase some "Herefordshire cider," with the view of testing whether it would bear the carriage to that country. Intending to execute that commission, he had some time since, in his own mind, fixed upon the person who had obtained the prize (Mr. Wm. Hill, of Lower Egleton Court, near Ledbury) to supply him with it, knowing him to be one of the most experienced manufacturers. If that cider should bear the voyage, he had no doubt that Australia will become a large purchaser of the county beverage.

The Rev. A. Clive said: No doubt the offering of the prize would greatly conduce to improvement in the making of cider. Every district could not make first-class cider, but they could all make it better than they did at present. He had tasted some with a tenant of his who lived in a little out-of-the-way place, which he said he obtained 6d. or 8d. per gallon for amongst the iron-works, but which he (Mr. Clive) should not like to be compelled to drink, and for which a much larger price would be obtained if it were well made.

Mr. Chandos Wren Hoskyns said the toast of "The Successful Competitors" was submitted to him. This was rather unfortunate, as he had not the good fortune to arrive at the show early enough to take such a view of the beasts, and make such an examination of them as would enable him to say one word in detail upon their individual qualities; but the impression made upon his mind by the very cursory glance he was in a position to take was perfectly astounding. For many years past he had had the opportunity of looking at the Herefords exhibited at the Royal Agricultural Society's Shows, and, as one of the stewards, had passed through those shows of stock merely as an amateur, paying particular attention, however, to that department allotted to Hereford cattle. At such places as Carlisle and Chelmsford, it could not be expected that the show of Herefords could be very numerous; yet as a class they had held their own well. They were always of the first quality; and in the presence of the popular breeds of this county, whether the beautiful little Devon, or the splendid specimens of shorthorns, he had never but felt proud of his native county. But he had been absolutely surprised beyond anything he could have expected by the show he had the gratification of glancing at before he came to that room. He regretted that he was unable to look at the animals individually, and only able to run through the exhibition; but the number shown together had such an effect upon the eye, after seeing the stock shown at the Royal Agricultural Society's meetings, as was peculiarly astonishing, and could not but take him back respectively to the smaller exhibitions he had seen of Hereford stock at the Royal Society's meetings. It not only, however, took his mind back to days gone by, but it also took his mind forward to the day—which he hoped was not far distant—when the Royal Agricultural Society of England would be able—for it was purely a question of ability—to hold their show at Hereford. He had had the immense satisfaction of being instrumental in getting the society to pay a visit in the locality of his residence in Warwickshire; but to do this he had to make the proposition that it should do so, and was fortunate in getting a seconder, to the council of the society four years before the event occurred. The next visit that he was anxious that the society should make as early as possible was to Hereford. To this end it was necessary for the county of Hereford to show that they are sensible of the great requirements for such a gathering as that of the great Royal Agricultural Society. Indeed they could not too soon take into their consideration what were the absolute and necessary preliminary steps required to be taken before they could hope to have that consummation of their wishes. In the first place, there must be plenty of railroads to the city, and where there was only a single line it would be difficult to tell the annoyance and disappointment that would probably result at such a time and from such a circumstance. They must show the Royal Society that they had the facilities to enable persons to have anything like a satisfactory opportunity of seeing things. Therefore he hoped to see the Worcester and Hereford railway soon brought to a completion. Local prizes must make an important feature in the list of premiums. All that he had heard that day about cider was most important, because at the Warwick meeting the show of cheese was completely spoiled by the inattention to a matter of such local importance. Like men spoken of in days of yore, they had heard of its coming, but did not know what it would be. Consequently, very few exhibited. In the county of Hereford they might get up a good local exhibition of hops, cider, and other commodities grown on the soil. A great desideratum in local exhibitions was well-written essays upon agricultural subjects. As one of the editors of the Society's Journal, he was in a position to say that the great drawback amongst writers on agricultural subjects was the power of expression; they possessed a large amount of knowledge and of intelligence, but they lacked the power of expressing their ideas in suitable language. He hoped that after the Canterbury meeting, which would take place next year, they should not be long before they had the show of the Royal Agricultural Society at Hereford. In the following year they intended to have a very large meeting in London, and they expected a great many foreigners; it was a meeting for all England. He did not see why the Royal Agricultural show should not be held at Hereford in 1862.

Mr. Duckham, in acknowledging the compliment they paid him as the director of the showyard, said they had had a most successful meeting. Although the disease had kept many valuable animals from the exhibition, still they had such a collection as astonished the stranger. He commenced his duties with the "Herd Book." He felt that the thorough establishment of the Hereford Society was one of the greatest benefits that could be conferred on the county, as it would forward the interest of the Hereford breed beyond anything else—second only to the "Herd Book." The latter he believed was all important to the breeders, and he flattered himself that they were beginning to see that it was so. Perhaps he might be allowed to touch on the subject relative to the early meeting of the Royal Agricultural Society in this county. He had some correspondence respecting it many months ago with the late respected secretary, and it was with pleasure that he (Mr. Duckham) listened to the remarks of Mr. Hoskyns, upon the subject. They also had some conversation upon it sometime ago, and he was glad to hear from Mr. Hoskyns that it was probable the meeting of that society would be held in this county in 1862, when he (Mr. Duckham) hoped that the Worcester and Hereford Railway would be completed, as well as perhaps the Hereford and Brecon. At all events, whether they were so or not, he felt thoroughly convinced that Hereford was better situated for the purpose of the Society's exhibition than the town of Warwick was. Last year he was an exhibitor and an attendant at the exhibition at Warwick, and he could not speak in high terms of the accommodation that was afforded there. Whether in travelling, or other accommodation, Hereford was as well as Warwick; therefore Hereford had a right to look to the Royal Agricultural Society to come to it at an early period (cheers). Hereford supplied the Society's exhibition with one of the most attractive classes, and he thought from that fact that the county had great claims on the Society's attention.

Mr. H. HIGGINS, as one of the judges of the day, assured them he could only repeat what other gentlemen had said, that in his experience of the show-yard he had never before seen so many good animals together, neither did he think that so many animals of such uniform character in quality and goodness had been before exhibited in the yard as they had seen on that occasion. All honour and praise to the efficient farmers and the gentlemen of the county, who had not been carried away by the clamour of the popular breed, but had steadily persevered with the Herefords. It must have been gratifying to those who attended the sale that day to see the Australian gentleman give 120 guineas for the yearling bull which took the first prize, and 225 guineas was given for a two-year-old bull. That, he thought, showed something like steady progress for the Herefords through the world. He hoped and trusted that what had fallen from Mr. Wren Hoskyns, who had great influence in the council of the Royal Agricultural Society, would be carried out. He was satisfied that any suggestion made by Mr. Hoskyns to that society would have great weight; and if the Rev. Mr. Clive and other gentlemen would push the matter forward, he thought that Hereford would soon be considered worthy of having the agricultural show. The Royal Agricultural show being brought down here in the course of a very few years—and Hereford was fully entitled to have the show when the breed of her beasts was considered—it would then be made manifest to the world what the native breed of Hereford really was. It had never yet been seen at the Royal Agricultural Society's Shows, inasmuch as the cattle were principally in the tenant-farmers' hands, and they could not afford to send their cattle across the country to compete. They had not received the proper remuneration for their cattle during the popularity of the shorthorns; but he believed that when they were properly tested—when the foreigner was brought to that central position to inspect them—they would stand much higher than they had ever done before. He would offer one suggestion which he hoped would be carried into effect—that the other societies in that county would take into their consideration the propriety of amalgamating their societies with this one, and so making one great county society. He was satisfied that that would be for the advantage of all. He remembered that three years ago he was asked by a citizen of Hereford what could be done for the Agricultural Society of Hereford, to bring it up from the low position in which it then was? He replied by advising that a great leading premium should be given, as he had no doubt that that would effect the desired object. That gentleman replied that he had not the slightest doubt that, if it could be shown to the citizens of Hereford that the plan recommended would restore the society to its former state, they would subscribe the necessary amount; that gentleman, with the assistance of the city, rose £100, and he (Mr. Higgins) asked them what effect that subscription had had on the society during the last two years? Had it not steadily progressed since the premium to which he had alluded had been awarded? Therefore he submitted that if the branch societies—he would not call them little societies—would amalgamate themselves with the Hereford Society, it would be for the interest of all parties, for the interest of the county of Hereford, and for the interest of the breed generally.

There were a number of other toasts, the concluding one being "Success to the Herefordshire Agricultural Society."

EDUCATE YOUR FARM LABOURERS.

At the Ludlow Agricultural Society, in proposing "Prosperity and Comfort to the Labourers," the speaker said:—"This is a toast that the individual experience of almost every one of you will prove to yourselves to be one with which the welfare of agriculture is intimately bound up. Because, if you look to the extent of trust which every farmer, in every department of his farming, must place in those agricultural servants, you will agree how desirable it is that they should be men fitted for their duty. When the farmer absents himself in attending market, or elsewhere, they are to be entrusted with the care of the granary—with the care of animals—those high-priced delicate creatures which we have seen to-day, and which we know require as much tending almost as his children themselves; and when you consider these things, I think you must discover the advantage which must arise to those of the farmers who have in their service men whom they can trust, men in whom they can confide, and not men whom they cannot trust out of their sight for a moment. Gentlemen, it is an agreeable thing to think that the progress of agriculture, which has been so great of late years, has been conducive to their comfort. When we look at the vast scientific improvements which have taken place of late in the operations of agriculture, we shall find that they have tended to improve the condition of the farm labourers. It is now seen that it is to the advantage of landlord and tenant to have about them a better class of men. We look at the machinery which is bringing agriculture more and more to perfection, and which is indispensable on the farm, and conclude that greater intelligence is required to work them. It was said that they would cause a gradual diminution of labour; but, I think the result has been to the contrary, for there seems a scarcity of labourers to work those machines. We see that it is not likely the steam engines, the steam plough, and the complicated mills which are now seen on many farmers' homesteads, will work themselves. They must have some one to look after them with more than the knowledge of a ploughman. Some twenty years ago you may recollect with what anger the first thrashing machine was met in the midland counties, on the principle that it would damage the interests and bring down the wages of the labourers. But what has been the result? The result has been that the success of agriculture has increased—and with it the making of machines has increased—and farmers have been able to employ men to a much larger extent, and to give them better remuneration. In 1830 you were angry when you passed a thrashing machine; now how many of you are there who can get a labourer to thrash to any great extent for you! There are other signs also of the gradual improvement which is going on among the labouring classes, as exhibited in their improved education, and improvements in their cottages, though there are few who are able to practise the latter to such a magnitude and with such skill as the Duke of Bedford. All these things show that the agricultural labourer is participating in the general prosperity of the country. I am sure all those who contribute in the various departments of agriculture have one common interest, and are bound together by one common effort for the prosperity of their calling."

At the Henstead Association, Sir John Boileau (addressing the labourers) said:—"It has been my custom on preceding occasions to make some remarks upon any circumstances occurring in the world around us that may bear upon your interests. There are only two matters that it occurs to me I need mention at the present time. The first of them is, that there is a very great improvement, greater than ever before, going on in machinery. Most of you have heard of the reaping and mowing machines now being introduced into this country. Well, my friends, these machines can do their work cheaper and better than any man can do it, and it is absolutely necessary that when they go on improving and becoming really applicable, that the farmer must employ them. But don't be alarmed at that. It will be rather a twofold advantage to you. It is true that for a little time you may not have the usual work; but if the farmer gains money, and saves money, by using these machines, he will not go and button that money up in his pocket any more than he now buttons up his capital, but will lay it out on other work which will employ you, and that work will, in all human probability, be much lighter and easier work than now; because threshing, reaping, and mowing are laborious; but if they can be done by machinery, men will be employed to watch and guide the machinery, and other necessary work. You will be better paid, and if by means of the machinery the farmers can produce corn at a less rate, your food will be cheaper, and you will altogether be in a better state than at present. I can hardly hope in these few words to convey to you all a very clear notion of why I think you should not be afraid of machinery, and why I think it will do you good; but I wish to persuade you that, as I am a friend to the poor man, and desire his welfare, I would not tell you that these things will be for your benefit if they were not so. I will add in conclusion on this point, that the next generation must be better educated than the present. There will be required more skill, intelligence, and knowledge, on the part of the labouring classes, and, as in the next generation the man best informed will be the man who will get the best pay, I would earnestly urge upon all of you to keep your children as long as possible at school, because that is the way in which they will obtain that intelligence which will enable them, when you are gone, and when that change takes place that must soon come, to get their livelihood, and succeed where those less skilled will fail."

The same text was taken by the Chairman of the Roding Labourers' Friend Society (J. W. Perry Watlington, M.P.), who said;—Another great object of this society was the encouragement of skill in the agricultural classes, and to make the labourers more ready and correct in the different departments of their calling; and he was sure that at a time when agriculture was so much improved, when the number of implements was so much increased, and a new agent—steam—was being introduced into the cultivation of the soil, it was of the utmost importance to the farmer and the labourer—it was important to agriculture itself—that the improvement of the operator should be extended in the same proportion. He believed that there were not now two opinions as to the advantage of educating the labourer.

DEEP DRAINING.—At the Surrey Agricultural Society's Meeting, Mr. Butcher, in responding on behalf of the successful candidates, said, he felt proud of the prize he had received, not so much on account of its intrinsic value as for the distinction it conferred. Entering upon an explanation of his plan of drainage, he avowed himself to be a deep drainer, and to have been so for the last 30 years. He remembered to have been laughed at for placing a main drain 13 feet deep. In the place where he had carried on his operations the surface drainage had been attempted by one after another most unsuccessfully, but the reeds still remained just the same, and could not be cured. He, however, having plenty of energy, and the owner placing at his disposal plenty of money, he had succeeded in restoring an estate which had been represented as irreclaimable. He felt pleased that he had succeeded, because the old men of the day gone by were unable to find out the secret. He found it out thus, that while others were content with mere surface drains, he dug deeper and deeper until he came down to the springs. He made a deep main drain, while his general drainage was about four feet; though on coming into the farm he found his neighbours' drainage about two feet. He felt that the land he had drained was drained efficiently. He advised that land should not be drained in small portions, and with furrows; but even in a clay soil, to allow the moisture to pass quickly through, as if through a colander, without leaving any of it to adhere to the surface. If the water was required to be carried off the surface, it must be done by ploughing on a flat surface; and whatever draining was done on stiff land was required to be done deep. He was proud to have beaten his friend Mr. Whitburn; and if he could improve further in draining, the company might depend upon it he would do so. On meadow land it was necessary to be careful, and to drain on a proper system, with the drains not too closely connected; always keeping one consideration in mind—not to study an artificial position, but to take nature's surface; and as nature makes the fall of the land, let the workmen take the cut.

HOW TO TEST THE QUALITY OF WOOL.—A Texas paper says:—Take a lock of wool from the sheep's back, and place it upon an inch rule. If you can count from thirty to thirty-three of the spirals or folds in the space of an inch, it equals in quality the finest electoral of Saxony wool grown. Of course when the number of spirals to the inch diminishes, the quality of the wool becomes relatively inferior. Many tests have been tried, but this is considered the simplest and best. Cotswold wool and some other inferior wools do not measure nine spirals to the inch. With this test, every farmer has in possession a knowledge which will enable him to form a correct judgment of the quality of all kinds of wool. There are some coarse wools which experienced wool growers do not rank as wool, but as hair, on account of the hardness and straightness of the fibre.

THE SEWAGE QUESTION.—THE RELATION OF TOWN AND COUNTRY.

COAL AND CORN.

The smoke nuisance of our large cities, especially those of our manufacturing districts, has always been a fruitful theme for our sanitary reformers to descant upon. Vivid pictures have been drawn of the unhappy fate of those who in "city pent," far from the "wave of woods and corn-fields," perpetually dwell "'mid the turbid air and chaos of eternal smoke," antagonistic alike to lung and brain, of the purity of the one and the health of the other: melancholy moanings have been made over stinted trees and languishing vegetation, and what honest John Evelyn quaintly and tersely termed "the hellish and dismal cloud of sea-coal," which obscures the glorious sunlight, and rarely allows—to gladden the eyes of weary workers—a sight of heaven's own etherial blue. Nor has the economic—the merely pounds-shillings-and-pence—view of the case been forgotten. Suggestive, if not somewhat vague and uncertain, estimates have been made of the loss sustained by manufacturers, who, with a strange indifference to waste, not usually characteristic of their race, belch forth from the thousand-and-one apertures of gigantic chimneys tons of coal which should be consumed in the interior of their furnaces; nor have calculations been wanting—going home, perhaps, more forcibly to the bosoms of all concerned than any other—to show the loss of linen, its extra wear-and-tear, and the increase of washing-bills, occasioned solely by the existence of the smoke nuisance. All this agitation, carried on for a long series of years, has resulted in attracting a large proportion of public interest to the question, and finally in legislative and municipal interference—an interference which, compelling smoke-producers to consume it, as the phrase goes, bids fair, some day or other, to restore to our skies as much of the clearness of atmosphere as our climate can afford; and to let clouds, if clouds there are to be, be of nature's, not man's, making. But at this transition period of the question, some thinking men amongst us have boldly disputed whether the getting rid of the apparent or visible evil, the smoke cloud, is all that is to be done; and have not hesitated to declare their belief that the *invisible* evil—ignored by all smoke denouncers—is just *the* evil which is most to be dreaded, and the existence of which is chiefly owing to this same smoke consumption, which is declared by the majority of sanitary reformers as the "be-all and end-all" of the question.

Of this class of thinkers, a very clear exponent of the principle upon which they found their opinions is the author of the pamphlet now before us.* As to the general inattention to the invisible evil of the smoke question, the author has the following: "In our atmospheric condition, the visible evil is the apparent and palpable carbon, the black smoke of our fires and furnaces. This has—in our manufacturing towns especially, and also in the metropolis—become so crying an evil, that even a legal remedy has been resorted to; and the law demands, and in some instances obtains, an abatement of the noxious practice. But the invisible evil is completely ignored; the smoke nuisance is held as *the* evil of our atmospheric condition. "Burn your smoke!" is the united cry of the Sanitary Association, the public, and the law. The visible evil here has attracted all the attention of the learned and the unlearned; and hardly a solitary voice has yet been heard *against* the smoke-consumption crusade or the sanitary smoke-consuming mania, if I may be allowed the expression: for in this case, not only does the cure of the visible not effect the cure of the invisible evil, but every effort to effect the cure of the one only increases the noxiousness of the other. Perfect freedom from smoke would, if accomplished, only increase the evil arising from the purely gaseous results of combination." To prove this position, so boldly announced in the face of our presumed experience on the subject, and of the opinion of our highest scientific authorities, Mr. Spence goes elaborately into the theory and practice of combustion of coal in the fire-places of our houses and the furnaces of our manufactories. Space will only allow us to give an abstract of these investigations; for a fuller exposition of them, we refer the reader to the pamphlet itself.

In the two classes of smoke which make up the mass of smoke which darkens the skies over our great cities—namely, house and furnace—there are essential differences in character, as there is in appearance. House smoke is of a very "heterogeneous composition;" that of furnaces is of a much more simple character. To note the distinctive character of these two classes of smoke, it will be essential to trace the two distinct stages in the decomposition of coal by heat, in whatever way that heat is applied. The first, or distillatory process, which takes place alike in closed furnaces and open fire-places, is of the same character as that carried on in the retort of the gas manufacturer. This distillatory process not only eliminates the volatile constituents of the coal—as hydrogen, carbon, nitrogen, and sulphur—but form at the moment of their expulsion "chemical unions, giving rise to a most interesting series of compounds." The result of the distillatory stage of combustion in our closed furnaces is the dense black cloud which, issuing from the chimney, is too well known to city denizens; this contains an "immense volume" of nearly pure carbon, precipitated from the tarry vapours, and also partly from the carbonic oxide. Mixed with this mass, and in an innoxious condition, we may find the sulphur, from the coal, as a distillate, through the affinity of the hydrogen gas, but again precipitated by the hydrogen, from its greater preference for oxygen. In opposition to generally received opinion, Mr. Spence "decidedly and considerately" hazards the assertion that "this period of the process of combustion in our manufacturing operations is the very point where the least mischief is done to the condition of the atmosphere and the health of our population. To sustain this, Mr. Spence gives a hypothetical analysis of the gases arising from the chimney during the distillatory process, as follows—

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* "Coal, Smoke, and Sewage, Scientifically and Practically Considered; with Suggestions for the Sanitary Improvements of the Drainage of Towns and the Beneficial Application of the Sewage." Being the substance of a paper read before the Literary and Philosophical Society of Manchester. By Peter Spence. Manchester: Cave and Seven, Hunt's Bank.

"198lbs. of nitrogen gas,
39·6lbs. water or steam,
29lbs. carbonic oxide gas,
31·5lbs. carbon or soot,
2lbs. sulphuric, as soot or solid,
1lb. carbonate of ammonia, or sulphate of ammonia.

"Of these constituents of the smoke, only one is of a character positively deleterious to health. Nitrogen gas is purely negative, and is not altered by passing through the fire. The water needs no defence. The solid carbon, against which all the cry is raised, is guiltless of any deleterious effect on human health, is one of the most anti-putrescent bodies, and while floating in the atmosphere does all that it can to arrest and destroy noxious and miasmatic vapour. Sulphur, again, in its solid form, is perfectly innoxious. The only objectionable body is the carbonic oxide gas; this is certainly poisonous, being equal in that respect to carbonic acid gas. It has, however, this advantage—that while carbonic acid gas has a specific gravity of 1·52, air being 1·0, and is thus 50 per cent. heavier than common air, the specific gravity of carbonic oxide is only 0·96, or somewhat less than air. It is not only aided in its escape by the laws of diffusion, but its lightness always prevents it from any tendency to descend to the human dwellings around."

As a contrast to this state of matters, Mr. Spence gives an analysis of the compound proceeding from the chimney when the second stage of decomposition is gone; or, that is, when the residuary coke of the distillatory process is undergoing the process of perfect combustion.

"568lbs. of nitrogen gas,
163lbs. of carbonic acid gas,
39·6lbs. of water,
5·lbs. of sulphureous acid gas,
1lb. of sulphate of ammonia.

"Now," says Mr. Spence, "I put it to the sanitary smoke-consumer to make his choice. Will he consent to have from every 100lbs. of coal during the distillatory stage of combustion 29lbs. of poisonous carbonic oxide gas, * * * and at the same time bear with the black smoke, which confines its ravages to the destruction of the purity of his linen? or will he choose, instead, 163lbs. of heavy carbonic acid gas descending around him by its specific weight, despite the law of diffusion, and so poisonous in its character, that it is an ascertained fact that 7 per cent. of it diffused in the atmosphere is immediately destructive of human life?"

The economical results obtained by carrying out combustion through both stages is influencing the question more than other considerations; so that with more widely extended smoke combustion, or, rather, perfect combustion of fuel, the evil here pointed out by Mr. Spence is likely to become daily more and more potent. As the immense volume of deleterious gases cannot be removed from the atmosphere, Mr. Spence proposes to carry them, by a system of "atmospheric or gaseous sewerage," entirely from the portion of the atmosphere in which we live, "into the vast atmospheric ocean over our heads at a point which would effectually preclude their returning upon us." Briefly this system may be described as the establishment of a complete series of underground tunnels or drains for the conveyance of our liquid sewage—the surface or rain water drainage being kept distinct from this—and through these tunnels the smoke and gaseous products from our fires and furnaces to be driven; the whole of the tunnels converging to a point where an immense chimney, at least 600 feet high, is to be erected—the ascensive power or draught of this chimney being such as, not only to drive effectually from the drain all noxious emanations, but to draw in (through every crevice or opening by which a communication to the outer air could be made) fresh air with a pressure or suction of 3½lbs. to the foot, or a velocity of 40 feet per second.

But the passing of the destructive gases of our coal combustion, and of the noxious emanations of our drains, to a region of the atmosphere beyond the zone of respiration, are not the only advantages derivable from the system. It has a direct and immediate connection with the subject of agriculture, in the progress of which we are all interested. The products of our coal combustion, the sulphureous acid gas, as it is dragged by the power of the huge central chimney along the drains or sewers, would come in contact with the liquid sewage, and, while arresting its putrefactive properties, would convert all the ammonia into sulphate, "thus entirely preventing its escape at any future stage of the process; so that, when converted into a dry manure, every atom of the combined nitrogen would be available as a fertilizer." Nor is this all. Ammonia, in one form or another, is an invariable result of coal combustion; so that the waste gases passing through the drains would "become themselves the direct source of a most valuable deposit, which has never yet been looked on as one of the elements of benefit to be derived from the excretæ of our towns."

The result of investigation, undertaken at Mr. Spence's request, shows that for every ton of coal consumed 22·4lbs. of sulphate of ammonia is obtained. Two millions of tons of coal are consumed annually in Manchester and Salford, which gives the money value of the sulphate of ammonia produced from this amount (taking the average price at £15 per ton) as equal to £300,000. Combined with the sewage of these towns, an artificial guano, equal in amount to 162,500 tons, would be annually produced. Averaging this at £5 per ton, the amount in money value would be £812,500; taking half of this as the expense of manufacture, £300,000 or £400,000 may be set down as the annual value of the sewage of Manchester and Salford obtained by Mr. Spence's system.

After drawing a glowing picture of the advantages derivable from the adoption of his system, Mr. Spence concludes as follows: "These are not extravagant anticipations, but legitimate deductions from the data exhibited. The subject is one of great and pressing importance; and it claims the sympathy of the thoughtful, of the philanthropist, of every one, in fact, who values the life, the health, and comfort of himself and his fellow-man. As to its ultimate accomplishment, this I am convinced is only a matter of time; and my hope is that these remarks may lead to its being contemplated not as a chimera, but as a most desirable and practicable reality."

R. S. B.

THE SUPPLY OF WHEAT FROM AMERICA.

We have for some years been in the habit of taking it for granted that a large portion of our supply of foreign wheat and flour must come from the United States, where immense tracts of new land are being annually brought under cultivation. It is from thence we receive from time to time the most astounding reports of the unprecedented increase of production and of exporting power, the cheapness and excellence of the prairie land of the Western States, where no felling of forests nor clearing of jungle—retard the operation of the plough or prevent the immediate appropriation of the soil to the cultivation of cereal crops. These numerous advantages, too, are said to counterbalance the converse of the high price of labour; whilst the extraordinary facilities their railroads and lake navigation afford for getting the produce to the eastern seaboard, whether viâ New York or the St. Lawrence, enable the grower to dispose of it at once, and the merchant to ship it regularly to the European markets with a certainty of a profit. On more than one occasion, our American friends have threatened to smother not only England, but all Europe, with "breadstuffs," alleging that they had some eight or ten million quarters to spare for the starving multitudes across the Atlantic. Certain it is that our farmers have looked with instinctive dread towards that quarter; and as the glowing reports of coming harvests in the States reach them, have felt a sort of desponding fear that our glorious British agriculture would be swamped by the inundating flood of Kentucky bushels and Western barrels.

Whenever, indeed, a bad crop in Europe has threatened a scarcity of wheat, we have naturally and instinctively turned our eyes to the broad lands of our brother Jonathan. He with the speed of lightning, and under the galvanic influence of the "almighty dollar," generously flies to our relief, and with an abundant supply blesses the eyes and stomachs of our hungry poor. But, on the other hand, when a good crop is reaped on this side the Atlantic, the apprehensions of the agriculturists are excited lest the threatened inundation should then reach them, in the shape of an extra supply from the States, and thus still further reduce the price or hinder the sale of the home-grown produce.

The two last seasons however, have thrown a good deal of light upon this subject, so as to prove to a demonstration that we can grow wheat as cheaply, if not cheaper, than they can deliver it on this side the Atlantic. During these two years, the supply of flour and wheat from the United States has not been near half the usual annual importation; the quantity for the eight months up to the 31st August, of wheat and flour as wheat, being respectively for each year, 623,194 qrs. in 1858, and only 23,821 qrs. in the present year, making an aggregate in the two seasons of only 647,015 qrs. It is almost unnecessary to state that the reason for this remarkable falling off in the shipments of corn to the United Kingdom is simply because the price has been higher at New York than it was at Liverpool or London, when freight and other expenses were added. At many periods the rates were absolutely higher than the London prices, as is proved by the excessively small quantity imported this year. Certainly, if the accounts from the States are to be credited, this has not arisen from any scarcity of wheat in that country—for it is generally reported that they have an abundance of that grain in the western states—but because the prices in Europe are so low that the merchants will not venture to purchase for shipping to this market. By the last advices, even, the price of flour was from 21s. to 28s. 9d. per barrel, or from 30s. to 41s. per sack, and wheat (white) from 46s. 8d. to 52s. per quarter. These are now the extreme prices of the London market, and much higher than those of the country markets. There is not, therefore, the least fear that importations to any extent will take place from that quarter at present.

But to what cause are we to ascribe the gradual advance in the price of wheat and flour in the United States, and to what extent is it likely to be permament? There are several causes, the most influential of which are, the increasing consumption, the decreasing production of the eastern states, and the heavy aggregate of expense in getting the grain to the eastern seaboard.

That the consumption of the Eastern States has been for a long while getting more and more a-head of the production is indisputable, and arises as well from the increasing population as from the decrease of production. These two causes operating together render necessary a large annual increase in the supply of wheat and flour from the west. And this is not confined to one or two States, but applies to nearly all the older Eastern States, especially those of New England, comprising New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, and Maine. In all these, hardly any wheat is now raised, although formerly a good deal was exported from them. They now obtain a supply from the west, so far as they require it; but Indian-corn bread is more eaten than that from wheat. In New York the same process of bad farming has produced the same effects; and in Virginia large tracts of land have been so exhausted that they are found not worth cultivating at all, and are suffered to return to their primitive state of nature. This process will probably continue so long as the rich and *untimbered lands* of the west offer so tempting an advantage to the eastern farmers to keep perpetually on the move thither, instead of improving the land that they already occupy. Washington's reason for the small acreage produce of America is still in force: "Labour is so dear with us that we find it more to our advantage to farm a large tract badly than a small one well" *.

With regard to the last cause, the aggregate expenses of transit from the Western States, these, although individually small, which is the boast of the American statistical writers, must necessarily be large collectively. Wheat is cheap enough at Chicago, and there is an abundance of it. But the distance from New York is great, and it has to pass through so many toll-gates, if we may so call them, at each of which expense is incurred, that the price is much enhanced by the time it arrives at the eastern port. The freight, for instance, from Chicago to Oswego, on Lake Ontario, varies from about 5d. to 1s. 1½d. per bushel; the latter, which is an extreme charge, adding 9s. per quarter to the price; after which it has to pass through the Erie canal and the Hudson, for which purpose it must be unshipped at further expense, and with a new freight in prospect. We cannot, therefore, be surprised at the high price of wheat when it reaches the Atlantic sea-board.

That the population of the States has increased faster than the production of wheat, is proved by the census. In 1840, the population was 17 millions, and the produce of wheat nearly 85 million bushels. In 1850, the population had increased to 23 millions, but that of wheat only to 100½ millions; whereas it ought to have been 115 millions. This deficiency of 14½ per cent. in the supply has occasioned an average advance in the price from 80 cents to 90 cents per bushel, which is 11 per cent. Since 1850 the comparative difference in the supply has been much increased, and the advance in price has been in proportion. There is, therefore, no prospect of any considerable importation of wheat or flour from the States this season at any rate, whatever may be the case in future.

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* The average produce of wheat, in different States, according to Professor Jay, is as follows: Alabama and Georgia, 5 bushels. In North Carolina, Virginia, and Tennessee, 7 bushels; New York, Ohio, and Indiana, 12 bushels; Maryland and Vermont, 13 bushels; Iowa and Wisconsin, 14 bushels; Florida, Pennsylvania, and Texas, 15 bushels; Massachusetts, 16 bushels per acre.

AGRICULTURAL STATISTICS OF ABERDEENSHIRE.

At the meeting of the British Association, Mr. Harvey read the following paper:

He commenced by observing, "The statistics of agriculture of the important county of Aberdeen open up so wide a field that the limits of a paper like the present can scarce give a faint impression of these in their various ramifications, far less carry out to the satisfaction of a meeting of scientific inquirers the detailed information requisite for forming opinions or drawing conclusions thereon of that definite character which are desired. Nor is it in the power of any statist, however qualified, to attain to the most complete accuracy of information on all points which come into calculation in such a matter. The utmost that can be attempted is to give a sketch of the agriculture of the district, casting the eye back to what it was in the earlier stages of its history, and tracing its advancement and extension to the present time, endeavouring to give something like a result of what the labour, the intelligence, and assiduity of its inhabitants have accomplished. Comprising within its limits an area of something like 1,254,400 imperial acres, with mountains ranging to the height of 4,000 feet above sea level, it presents all variety of climate, temperature, and soil. This 1-16th of Scotland was not long since described as, 'with the exception of the low grounds of Buchan, and the highlands of the south-west division, consisting for the most part of tracts nearly level, but often bleak, naked, and unfertile, though interspersed with many rich spots in a high state of cultivation.' Its conventional divisions are five: Marr—the most mountainous district, abounding in natural forest and lowering hills, where, under the 'steep frowning glories of dark Loch-na-Garr,' our most gracious Sovereign has her Scottish home; Formartine—which joins the coast of Aberdeen. Buchan—next to Marr, the most extensive, with a coast line of 50 miles; The Garioch—at one time termed 'the girnel' of the county; and Strathbogie inland, and less fertile, interspersed with hill, moor, and moss, though in other respects not less famous in history. By the census of 1851 the population of the county was 214,658, of which the very largest portion are entirely dependent on agriculture. The rental of real property may be classed about £540,000, exclusive of the burghs, and the number of parishes into which the county is divided is 88, with some recent subdivisions. With these general observations premised, the more immediate subject of this paper shall be followed out." Mr. Harvey then proceeded to give some details with respect to agriculture in Aberdeenshire at the period when Sir John Sinclair instituted his statistical inquiry, up to which time it had made but comparatively small progress. Having cited statistics for a number of years subsequent to those embraced in that enquiry, Mr. Harvey proceeded: "The genius of Watt revealed the powers of steam, and called it into action, and steam navigation opened Smithfield market and its prices to Aberdeenshire as well as to Norfolk. The drover's occupation was gone. It was no longer the raw material that left for the south, but the finished article of commerce, carrying, as is well known, the highest price in the metropolis. Along with the opening of the cattle trade to London came another change. Up to that time the polled black, the horned Aberdeenshire, with here and there a north country Highlander, were the cattle of the county. Small in size, hardy in constitution, and somewhat slow in growth, they wanted early maturity. The well-known Rainie of Phantassie had gradually been introducing into the south Durhams from England, and the breeding of shorthorns engaged the attention of the spirited Captain Barclay, in the adjoining county, Kincardine. Intermixture of blood gave the requisites, along with careful selection of animals. A bulk and early ripeness was attained which was not before to be had. The keep of years was saved, and the £30 oxen of Skene Keith's day, of perhaps eight or ten years old, are supplied at the age of three. The black polled breeds, save in the upper districts, have almost become the exception, and the mellow red or roan cross breed taken their place. Nor did the change end here; the opening of the cattle trade induced parties, not farmers, to take grass and turnip, and become shippers. Foremost in this were our highly respected, intelligent, and wealthy butchers, who had particular facilities for entering on such an occupation, having the advantage of a home and export trade. By such means great aid was given to the prosperity of the county. A cloud, however, again rose on the agricultural horizon—the lion of free trade roared, and the new tariff carried dismay to the heart of many a farmer, assailed alike in cattle as in corn. It to many seemed as if their last refuge were taken away, and that they were doomed to ruin irrevocably. To reconcile agriculturists to the measure came the drainage loan—science had hinted that produce was stinted because of the stagnant water which made an impervious subsoil give forth its still more noxious constituents, as well as rendering the soil difficult to labour. Abounding in tilly subsoil as Aberdeenshire does, aught that would ameliorate soil or heighten temperature was seized on with avidity, and countless miles have been executed of furrow drains, at a cost which, judging from appearances, does not appear too great. The amount expended I regret I cannot definitely state. Large tracts of land have been added to the cultivation of the county, and seasons have been of late of a milder character. Extending cultivation demanded additional supply of manure from the scarcity and increased value of bones. To chemistry I am here indebted for putting in view the well-known *succedaneum* of guano, of which there is annually consumed in the county about 8,000 tons. Lime is a good deal resorted to, and its consumption for the purpose of manure amounts to about 17,000 tons, while the supply of manure is still further increased by oilcake and other feeding substances, which are used to the amount of some 12,000 tons. The few recent years have operated beneficially in price for the farmer's commodities in Aberdeenshire, and he is now on the eve of having an equal advantage with others—by the intersection of the county by railroads—of attaining any market for his products, and other facilities which these afford. Something of the importance of the cattle stock may be gathered from the fact that cross-bred oxen are occasionally slaughtered at a year old in Aberdeen, weighing, the four qrs., 112 imperial stones, and furnishing about 12 stones tallow, while polled oxen have been raised of the live weight of 18 cwt. 2lb. at two years old; 20 cwt. 2 qrs. 11lb. at three years old; and 24 cwt. 2 qrs. 6lb. at four years old; and the dead weight of another polled ox, without neck or kidneys, was 15 cwt. 2 qrs. 8lb., with 16 imperial stones fat; that the average number of beasts killed per week in the Aberdeen custom is 700, and of sheep 250, and the shipments by steam from thence during 1858 were—of cattle 5,652, sheep 6,622, pigs 1,702; by rail, of cattle 21,502, with the enormous amount of 5,226 tons of dead meat. In regard to grain, for which there is in Aberdeen a ready market, a rather singular feature presents itself. On inquiring into the statistics of the price of grain since the year 1826, there appears a culminating and retrograding gradually every 10 years, giving an average of 30 crops. Bere, 26s. 9½d.; barley, 28s. 3d.; oats, 20s. per qr., with oatmeal 15s. 9d. per boll of 140lb. imperial. Wheat can scarcely be reckoned a staple of the county. In closing these necessarily short and imperfect observations on the agricultural statistics of Aberdeenshire for the lucidation of its present state, there are appended hereto a statement of the probable value of agricultural produce, home stock, &c., framed on the agricultural statistic returns of 1857 (an inquiry which, under no circumstances, ought to have been discontinued), with reasonable value of stock, made after searching enquiry and comparison with personal experience; while the prices for grain and fodder are an average of years of the county. And there is further appended a calculation faithfully made, based thereupon, which will present to view the probable expense and return from agriculture at the present period, that thereby a judgment may be formed of the advance made from the period of Sir John Sinclair's inquiry and calculation in 1798, and of the agriculturist's present position. Shortly stated the Aberdeenshire agriculturists have complied with the conditions imposed on them by him 'to raise a greater produce for the public,' for

The live stock value of 1858 exceeds that of 1798 by	£1,681,941	5	0
The grain crop by..................	689,095	6	1
The green „	621,454	16	3
The grass „	436,956	2	6
Total..............	£3,429,447	9	10

for with something under a double acreage stands a stocking of one-third greater value. They have with that fulfilled the second condition 'to pay a better rent to the landlords,' which now, moderately reckoned, well nigh doubles the rent per acre of that period. They have even under larger farms, by more skill, greater economy, and science, brought the land to yield six returns; but that done, the third condition has scarce met its recognition—'that they should live more comfortably themselves,' about 8¼ per cent. being all that accrues to pay interest on capital employed, meet extraordinary contingencies, and go to accumulation. The present moment shows this, that with better buildings and great improvements any profit that the agriculturist of this district has, is by his cattle, now at a maximum figure; and that by dint of these he may be said 'to dwell in the presence of his brethren,' but no more. In addition to the probable fall of stock, he cannot but contemplate what is before him. A continuous rise in wages, now exorbitant, the result of emigration and other causes—an increase in outlay for manure for the inferior soils yet to be reclaimed—and enhanced expenditure in all furnishings for the farm, while his grain in maximum, if it does not decrease, remains stationary. He cannot be without considerable misgivings, while together with these stands before him the fact that at no time was there such illimitable demand for the possession of land under all discouragements, and no period when the mercantile free trade policy showed so much tendency to shake loose the ties which hitherto have bound landlord and tenant together. Yet, under all these circumstances, it is but justice to the body to affirm that, forward in intelligence, and taking courage from a retrospect of the past, they trust that, in the various gradations of all human things, they are not to be overlooked, but, taught the advantage of increased scientific knowledge, they will address themselves assiduously to their duties, and as light after light breaks in upon them, still have the aspiration—'Teach us still more to wonder, more to know.' "

The Very Rev. Principal **Dewar** observed that no one could remember the state of agriculture in Aberdeenshire 30 or 40 years ago, who could fail to be astonished at the improvement made by the industry and indomitable perseverance of its inhabitants. A circumstance had been brought to their notice by Mr. Harvey's paper, that the cultivators of the soil had not been benefited as they should have been by these improvements; he referred not so much to the farmers as to the labourers, and he strongly objected to the recommendation of a very eminent agriculturist—Sir John Sinclair—to diminish small farms and increase the size of farms, as had been going on in Aberdeenshire and other parts of Scotland. The consequence of that had been, first, the demand for exorbitant wages; and secondly, the tendency to immorality. How these had operated he would not then enter upon; but the fact was attested and made public by periodical returns. As to exorbitant wages, if he, a proprietor, cleared all his land of those who were servants for him, and drove them into towns, how could he expect to get servants without paying exorbitant wages? Yet this process had been going on over Aberdeenshire and other counties.

MICHAELMAS-DAY.

A deadly warfare has just been waged among the genus *Anser*, to supply the ravenous maw of the metropolitan millions; and the aggregated cackling of the goose tribe thus slaughtered would, if heard now, burst on the ear less pleasantly than the boom of "Big Ben." If, as Livy tells us, the geese of Juno saved the Capitol, the geese of the fens of Lincolnshire and the heaths and commons of Suffolk, Norfolk, Berks, and Ireland are a saving clause in the dietary of Michaelmas-day. For still the quaint description of Sir George Head in his "Home Tour in the Manufacturing Districts" holds good; and nearly every paterfamilias, whether his income be large or small, and no matter what his religious or political persuasions, in conformity with custom, at least once in every year, at the head of an obedient family, like a coachman mounted on the coach-box on a gala-day, sits in the pomp of conjugal and paternal affection, knife-and-fork in-hand, behind a fat fragrant goose on Michaelmas-day.

A few days ago the majority of our readers, as well as the metropolitan public in general, were testing the merits of this savoury bird. The Londoners are famous, we are told on high authority, for their devotion to the goose. A million a year are consumed in London; but how many of these fall to the September festival, statistics do not inform us. The French and the Americans beat us, however, in the consumption of geese, proportionately to the population. In Paris fully 600,000 are eaten annually, and in New York quite as many. Considering that in the London markets geese average 1s. a-pound net weight, after deducting the giblets and offal, and may be taken to weigh, one with the other, 10 lbs., for which probably 7s. will be given, we have an aggregate sum of £350,000 spent on this class of food alone in the metropolis. The large breed of geese will sometimes weigh 15 lbs. or more; but the smaller kind are the more delicate eating. Delicacy, however, is often not so much regarded as the beautiful appearance and savoury smell of a "fine fat goose" on the festive-board.

We are not singular in the present day for our reverence of geese. Ancient Egyptian monuments show us geese both alive, and plucked and prepared for the table; and Herodotus tells us that geese were reared in large quantities and held sacred, probably because a favourite article of food with the priests!

We cannot keep geese as they do in the northern regions, where, after being plucked and gutted, they are buried, and, as soon as frozen, keep perfectly sweet through the winter. Our poulterers in Leadenhall and Newgate markets would be but too glad if there were some means of keeping the birds sweet and fresh through the close muggy weather.

Railways and steamers have created a great revolution in the sources of supply and the mode of transmitting poultry to market. London is now largely supplied from Belgium and Ireland. Geese are not now driven alive in droves of several thousand from distant counties to the metropolis, but are killed, plucked, and packed off by train.

Old Pennant tells us, that "vast numbers of geese are driven annually to London to supply the market, frequently two or three thousand in a drove; and in the year 1783 one drove passed through Chelmsford on its way from Suffolk to London, that contained above 9,000! Amongst those sent, he adds, were all the superannuated geese and ganders (called the "cagmags"), which by a long course of plucking prove uncommonly tough and dry. The old birds even now find their way to the London market, although not on their legs, as many a housekeeper, who buys a bargain at the door from an itinerant countryman, may prove. When Willoughby tells us that geese will live to eighty years old, there must be some aged bipeds of the goose tribe in the world, which, after they have been well plucked for years, their owners are still desirous of further utilizing.

Mr. Dodd, the shrewd investigator of the "Food of London," tells us in his curious work, that "London is not supplied with its Michaelmas geese without an awful amount of slaughter: the battlefield being in the fens of Lincolnshire and in the neighbouring counties. Sometimes there will be 5,000 geese penned closely together, 'cackling their sorrows to the winds, and awaiting their melancholy doom.' When the fatal hour arrives, a boy drives about a dozen geese from a pen into a room; a second boy takes each poor bird in its turn, entangles its pinions behind its back, and inserts its legs into a noose hung against the wall over a trough; a third boy finishes the tragedy by means of a knife. When the bird is dead, its legs are disentangled from the noose, and it is tossed through a window into the plucking room, where, behind a large table, sit several men and women, who speedily become enveloped in a cloud of dust and down; their duties consist in plucking the feathers from the geese, for which they receive a shilling a score. Every goose, so soon as plucked, is thrown upon a dresser, whence a man takes it for the purpose of trussing, and when scores or hundreds have been thus treated, the geese are packed in baskets containing 25 birds each. In the days of broad-wheel waggons, 25 baskets made a waggon-load; if the average weight of a fattened goose be estimated at 10lbs., each waggon would thus contain nearly three tons of goose flesh: but these goose waggons must now be numbered among the things of the past."

Messrs. B. and S. Beatty and Co., of Cayuga county, New York, who are among the largest poultry breeders of the United States, furnish some general instructions, which are worth republishing here, on the mode of preparing poultry for market:

"Never kill a bird unless it is fat. Never cut off the head of a turkey or goose, but hang them by the heels where they cannot bruise themselves in the death-struggle, and stick them with a small knife and bleed them to death. Ducks and common fowls, if decapitated, should be held or tied and hung up to bleed to death. Never kill your birds with full crops, you will lose in price more than you gain in weight. Never strangle them, so as to leave the blood in. The best plan is to tie all kinds of birds to a line drawn from post to post, or tree to tree, and stick them just in the forward end of the neck.

"You may pick all sorts of birds dry, if you don't tear the skin, but you must scald them afterward by dipping them suddenly in and out of boiling water. Don't scald the legs too much, whether you pick first or afterwards. Be careful of that. You must pick them clean, and the after-scalding makes them look plump and good.

"Never draw a bird. It is worth while to pay freight on the intestines, because the meat cannot be kept sweet long after they are drawn and the air admitted inside of the body.

"It is a practice of some of the best poultry men, after the birds are plucked, to plunge them suddenly into boiling water, and then immediately into cold water. This gives them a clean, plump appearance, and makes them look fat if they are in decently good condition when killed. Nothing, however, can make a poor bird look well, while ill dressing will make the best look poor.

"Lay the birds upon clean boards, in a cold room, till perfectly cool but not frozen; as at all times, but especially when there is a probability of damp close weather, great care must be taken that the animal heat is out of them; and then pack in boxes with clean rye and oat straw so that they must not touch each other, about three or four hundred pounds in a box, filled full; mark the contents on a paper inside, and on the lie outside, and direct it to your commission merchant plainly, and send it by the express, and the invoicd by mail.

"Never kill your birds on a damp day, nor pack them, if you can avoid it, except in a clear dry cold atmosphere; and try to avoid night work, when you are tired and your help sleepy, and all of you careless.

"No matter how light your boxes are, they must look clean, or your poultry will not sell at first prices. In packing, press the wings close, and press the bird down hard on the breast, the legs extending back, and fill each course full, and then lay on straw and another course of birds. Nail tight, but don't let a nail project inward to tear the bird.

"Give your name and residence in full on the bill in the box and on the invoice by mail.

"Never pack in barrels if you can get good dry-goods boxes, as the rolling of barrels injures the poultry. Well-packed boxes of well-prepared birds will keep sweet for a long time in cool weather, and may be transported by express or by rail, and arriving in good order can be sold readily at the highest prices."

We trust that these remarks may enable our friends to secure a good market for their poultry, and cultivate a branch of trade to material profit and advantage.

The late M. Soyer states the best way of killing poultry is to take the bird by the neck, placing the thumb of the right hand just at the back of the head, closing the head in your hand, your left hand holding the bird, then press your thumb down hard and pull the head and neck contrariwise, the neck will break instantaneously, and the bird will be quite dead in a few seconds; when hang it for a short time by the legs for the blood to flow into the head, which renders the flesh much whiter. "In France (he adds) we usually kill them by cutting the throat close to the head. Both methods are good with regard to the whiteness of the flesh; but I prefer the English method, not being so barbarous."

There are other parts and products of the bird useful besides the flesh. The feathers, the down, and the quills have long been articles of great commercial importance. Besides our home supply we import about 4,000 cwt. of feathers for beds, worth £27,000, chiefly from Russia, Holland, and France. Even ten years ago the annual value of the live geese feathers in the United States was set down by the Census Commissioners at £200,000.

Our clever brothers on the other side of the Atlantic, who are always on the look-out for "labour-saving machines," seem to have turned their attention even to the matter of goose plucking. Not that we can always place full reliance on their statements, especially after the recent Niagara Falls rope-walking exhibition.

The *Scientific American* announces a machine for picking geese, the result of a number of years of labour, and one of the most ingenious pieces of mechanism ever seen. It not only plucks the feathers, but separates the long ones from the short ones, and cleans them perfectly while passing through the machine. It will pick forty-five geese per hour, and must materially affect the price of feathers.

The grey goose quill has been superseded extensively by steel pens; but the consumption of quills for writing is still large, since our foreign imports in 1857 numbered nearly 14,000,000 quills. Some few of these were swan quills, worth £5 to £6 the thousand; but the great bulk were goose quills, selling at 26s. to 30s. the thousand. The goose-wing is still a common domestic brush for dusting and sweeping in farm houses, &c.; quills are used for fishing-line floats, and for toothpicks; while we have recently seen in the tobacconists' shops an ingenious application of the hollow bone of the goose-leg, as a tube for tobacco pipes and cigar holders. Goose-grease is excellent for chapped hands, and goose dung for fertilizing the farmer's land. Indeed, in Alsace and some other localities goose quills and waste feathers are spread over the soil as manure, at the rate of 9 or 10 sacks of 50lbs. each to the acre. So much for goose. These facts may at least serve as a rider to the sauce and stuffing enjoyed on Michaelmas day.

AN AMERICAN VIEW OF THE WARWICK SHOW OF THE ROYAL AGRICULTURAL SOCIETY.

Stanford Howard gives the following account of the Royal Agricultural Fair of England, in a letter to the *Boston Cultivator*, dated Liverpool, July 16th :

I have just returned from the Show of the Royal Agricultural Society, at Warwick. It is a grand show—superior, on the whole, to that of last year at Chester, and such, probably, as no other country but England could make. Not that other nations could not get up such an one by contributions from abroad—as France did a few years ago—but that as coming from her own soil and her own people, it could not be equalled.

THE GROUNDS.

The show-grounds consisted of twenty-six acres—somewhat more than was occupied last year, which, by allowing more space for avenues, gives greater conveniences for the people, and gives a more agreeable effect to the general scene. The same excellent order is observed in the arrangement of the different departments that prevailed last year, and the whole moves on with a precision that should be a lesson to my own countrymen in the management of such affairs. This perfection of system is still more entitled to notice at this time, as the Society has lately been under the necessity of changing its principal working officer, Mr. Hudson, who was for several years its secretary, having been dismissed, and who, I regret to say, has since died. The duties of the Secretary *pro tem*, and Honorary Director of the Show and General Arrangements, were efficiently performed on this occasion by Mr. B. T. Brandreth Gibbs, long so favorably known as Secretary to the Smithfield Club.

SHORTHORNS.

In regard to the different classes of animals, we may begin with the cattle, of which the Shorthorns were the most numerous, the entries being 163 for the prizes offered by the Society, and a large additional number for the prizes offered by the local committee at Warwick. They were thought to have more average merit as a class than last year, and certainly comprised many fine animals. The leading prize-takers were Messrs. Towneley, Ambler, Pennant and Douglas. The name of Richard Booth does not so frequently occur in the prize-list this year as usual, and some think it is not to be found as frequently as it ought to be. His magnificent heifer, Queen of the Isles, which last year, as a yearling, was almost universally admitted to be unequalled for her age, is not even named in the list of awards. On comparing her with those which received the honours, it is not easy to understand the decision.

THE HEREFORDS

consisted of about ninety head, and as a class were fine. The average merit was certainly very high, and there was not an inferior animal among them. Prince Albert, Lord Berwick, Messrs. Price, Rea, and Clive were among the principal prize-takers. Several of the animals were of great weight for their size, and of remarkable symmetry. Mr. Rea's three-year-old heifer, which took the first prize in the cow class, was superior in this respect to anything in the whole show. It was stated that her girth at the chine was more than an inch greater than that of any shorthorn cow on the ground. It was also stated that Lord Berwick's four-year-old bull, which took the second prize, measured two inches more than the first-prize shorthorn bull. I do not recollect the precise measurement, but it was over eight feet.

THE DEVONS

were forty-five in number, and of very superior quality, scarcely one among them that exhibited a material fault. They were smaller on the average than last year, and in several instances what many would think too small. The first prize cow, Mr. Merson's, was one of the best I ever saw, of good size and fine form. Messrs. Quartley, Turner, Merson, Farthing, and His R. H. Prince Albert were the leading prize-takers in this class.

It may be well to remark, that no reference was had to milking points in the decisions on Shorthorns, Herefords, and Devons, they being judged for beef only.

LONG HORNS OF OTHER BREEDS.

There were some interesting specimens, the most striking of which were the longhorns, brought out by prizes offered by the local committee. I find myself much indebted to this committee for the opportunity of seeing so many fine animals of this kind. I did not suppose it would have been possible to have found in all Britain so many of such merit. In fact, it is but a few years since we were told, in the English agricultural papers, that the breed was extinct or nearly so. Now we have seen at this show twenty head which are so good that it seems doubtful whether better ones of the breed were ever seen. They appeared to have been brought out without any special preparation, but were fit to be seen anywhere. They were of rather large size—some of the bulls being nearly equal in frame to any Herefords or shorthorns on the ground—generally well shaped, and in all cases excellent handlers. I think it was always admitted that no large cattle excelled the longhorns in quality. The cows were well pointed for milking, and they are said to give the richest milk of any breed except the Jersey (or the cattle of the Channel Islands), and for quantity and quality of cheese, their advocates declare them to be unrivalled.

AYRSHIRES IN MASSACHUSETTS.

I see I have but a few moments before the closing of the American mail, and must defer further notice of the show and other matters till next week. I will add that I have just put on shipboard twenty-three head of very superior Ayrshire cattle for H. H. Peters, Esq., of Southboro, Mass., a more particular account of which I will give in my next. H.

HARVEST-HOMES AND AUTUMN GATHERINGS.—THEIR CONDUCT AND EFFECT.

The very name of the month that now heads our paper suggests of itself the celebrations with which the season is associated. There is a full, hearty fall in this same October, especially grateful to the ear of an Englishman. It is true the word may have gradually lost some of that more peculiar significance once attached to it; but it is still, nevertheless, a time of rural festivity and rejoicing. Never, indeed, was this so methodically carried out. There is far more to be made of a mere harvest-home than many of us would have, a few years since, ever have supposed it susceptible. No doubt much of the boisterous hilarity of former days has disappeared. The conventional orgies have almost everywhere come to be toned down: and people begin to understand that, after all, theirs is a sacrifice to Ceres rather than to Bacchus. The careful wife or mother no longer dreads the approach of such a holiday, but looks forward even for her own share in it. The clergyman of the parish has little fear as to his welcome, and the Squire enters with no awkward feeling of being "only in the way." Amongst all our efforts for the improvement of the labouring classes, there is none more evident than this. An habitual excess that was at one period absolutely encouraged by the giver of the feast has slowly yielded to a certain refinement and moderation altogether in accordance with the character of the age. A fine gentleman no longer plumes himself upon being a three-bottle man, and by the same showing a good ploughman may be able to enjoy himself without getting drunk. We should be the last to order out "Old October" on the appearance of the ladies and the Vicar: all we stipulate for is, that he should "learn how to behave himself."

There is no question but this reform has been favourably regarded from nearly every point of view. It was a delicate business to interfere with the pleasures of the working man, as it ever has been to intrude much on his privacy. A certain kind of tact was needed that has seldom, we believe, been wanting, and even Doctor Ellis can mount his hobby-horse and marshal his troop of tea-total husbandmen without any great danger. Proverbially loath as a particular school of politicians have been to admit of any good from such a quarter, the manifestation of this amendment has been generally spoken to. A fine line, to be sure, continues to be drawn between the holiday-afternoon, and any more direct reward for the skill with which the labourer has done his work, or the manner in which he has conducted himself. The latter still continue to be denounced as snares and absurdities; the fact being that such proceedings are yet in some quarters identified with a bygone political struggle. The old animus against the Agricultural Society has not even now died out. There is an indescribable feeling that mischief is still meant; and although a Whig landlord may preside, or a manufacturer carry off the best prizes for Shorthorns, the whole thing is looked on as little more than a school for Tory landlords and Protectionist orators. Nothing can be more unjust than this; as nothing ever was suffered to die out more readily than the discussion of a question by those that its adjustment was considered most likely to affect. During the many Agricultural Meetings we have attended for many years, we really remember nothing of a party character, and scarcely anything more political than the maintenance of our army and navy. A succession of events have commonly warranted the reference to our national defences; and we are glad to see, despite the frowns of Lord Albemarle, that the formation of rifle corps has been one of the chief topics under consideration this autumn.

We had almost said it was the only one. So far, "the dinner of the Society" has been more than usually flat and uninteresting. It is this, indeed, that alone can bring such gatherings into ridicule. Had the labourer as little to do with his own harvest-home holiday as the agriculturist appears to have with his agricultural meeting, there might probably be some complaint as to our having overdone it. But it is not so. It is only his employer that the great people override, leaving him not a word to say for himself, or the proper opportunity to say it. This is not the first by many times that we have objected to the manner in which the farmer is pooh-poohed and jostled out of his place on such occasions. It is the old play of "Hamlet" without the Hamlet over and over again. In his stead we have pottering lord-lieutenants, long-winded rectors, fatally fluent Members of Parliament, self-sufficient citizens, and gallant officers, who nine times out of ten speak, every man for himself, without the slightest reference to what has brought them together—or, if there be any, it is very slight indeed. How many reports of local shows have we thrown down this season, with the one same sentence against them, "There is nothing here!" Occasionally, to be sure, a few words may be called out; but these are very exceptional, and in anything but uniform tone with what is going on. Possibly, after all, there may be nothing to talk about. Agriculture goes on very well as it is. Prices are good, and rents paid. Improvements are effected, and terms and covenants everywhere satisfactory. The exhibition of stock and implements, useful as it might have been, is still scarcely worth speaking of. The object of the Society is too well known to be discussed. Neither landlord nor tenant has anything to learn of each other; or if they have, this is hardly the time to hear it. Or possibly, again, the farmers are no talkers. They certainly have very little practice. We have, however, known them drawn out under proper encouragement, or when left more to themselves. And let it ever be remembered, that some of the best "movements" we have had have originated in good sound practical remarks offered by those best qualified to give them. Amongst no class, either, is mere "make-believe" of such little avail; and, consequently, the gentleman who is considerate enough to get up something *apropos* rarely does much with it. His "two blades of grass growing where one grew before"—"his sword of Cincinnatus"—or even the great climax to his address, the five-pound prize he is going to present them—don't *tell*. In a word, the farmers must have more to say for themselves at these anniversaries, or we shall have them again held up to the world as mere shows of country squires, and so on. Once it was the prize labourer, and now it is the prize landlord. We wonder when the tenant will have a turn!

We repeat that all this must be taken with a certain degree of qualification. The original animus is bad and unfavourable. Still there is something in it. For our own part we should be the last to confine such meetings to the tenantry only. There is no better opportunity for the two classes coming together than at such a county gathering. But they must come together on fairer terms. We are not quite sure but that the public duties of the day might be more equitably divided. It is not an absolute necessity, for instance, that a noble lord or an honourable member should always occupy the chair. Could they not be content now and then to come as welcome guests? There is something already in the way of precedent for what we speak to. The Ludlow Society has a custom of choosing its president from amongst the working committee; and at the dinner of last week, Mr. Stedman, of Bedstone, took the chair. But the character of the company is by no means lowered by the action of such a rule. On the contrary, Mr. Stedman was supported right and left by Lord Powis, Lord Newport, Sir Baldwin Leighton, Sir Rouse Boughton, Colonel Percy Herbert, Mr. B. Botfield, M.P., and other proud Salopians. We are rather inclined to think that many a country gentleman would attend these dinners all the more readily if the committee were not generally so anxious to put some such office upon him.

It is very plain that more good ought to come of these meetings, or rather of these dinners. The proceedings of the morning, the show of stock and the working of the implements might surely find material for a little seasonable talk. Then, the great agricultural questions of the day, the progress of steam power, the new system of cropping, the diseases of roots and so forth, might all or any come in for a turn. Farmers are almost the only people that at such a time it seems cannot talk of their own business. We do not say who is to blame, but we fancy something might be put either way. The landlords need not be quite so ready to go into harness, and the tenants not always so solicitous to put them there. Some people seem to think a great man cannot be made welcome without you give him a speech; and officious nobodies run in and out, announcing that Lord Longyarn is in the yard, or the rev. Mr. Rigmarole is "coming;" and down he goes for a speech accordingly. Let the management act with a little more determination, and before putting any one down in this sort of way, let them consider what he is capable of saying and doing at an *agricultural* meeting.

ADVANTAGES OF UNDER-DRAINING.

1. It *prevents* drought.
2. It furnishes an increased supply of atmospheric fertilizers.
3. It warms the lower portions of the soil.
4. It hastens the decomposition of roots and other organic matter.
5. It accelerates the disintegration of the mineral matters in the soil.
6. It causes a more even distribution of nutritious matters among those parts of the soil traversed by roots.
7. It improves the mechanical texture of the soil.
8. It causes the poisonous excrementitious matter of plants to be carried out of reach of their roots.
9. It prevents grasses from running out.
10. It enables us to deepen the surface soil—by removing excess of water.
11. It renders soils earlier in the spring.
12. It prevents the throwing out of grain in winter.
13. It allows us to work sooner after rains.
14. It keeps off the effects of cold weather longer in the fall.
15. It prevents the formation of *acetic* and other acids, which induce the growth of sorrel and similar weeds.
16. It hastens the decay of vegetable matter, and the finer comminution of the earthy parts of the soil.
17. It prevents in a great measure the evaporation of water, and the consequent abstraction of heat from the soil.
18. It admits fresh quantities of water from rains, &c., which are always more or less imbued with the fertilizing gases of the atmosphere, to be deposited among the absorbent parts of soil, and given up to the necessities of plants.
19. It prevents the formation of so hard a crust on the surface of the soil as is customary on heavy lands.
20. It prevents, in a great measure, grass and winter grains from being *winter-killed*.

THE EMPLOYMENT OF STEAM MACHINERY IN AGRICULTURE.

Especial attention has been called of late to the great auxiliary power of the age. This, however, has not been with the most favourable bias. One injury, it has been said, will serve to outweigh a whole multitude of benefits, and the services of steam would seem to be more or less susceptible of somewhat similar appreciation. "If thy right hand offend thee, cut it off." Accidents on railways are unfortunately too common to command much notice. We are still content with an inquest, a fine, and a reprimand. But the sad and ever-memorable disaster on board the leviathan ship, occurring under the circumstances it did, at once set people a-thinking. We began to feel, at last, how terrible was the strength of our slave if carelessness or mismanagement suffered it to be once turned against ourselves. We must use it now—and only use it with the full cognizance that it is powerful alike for good or for evil, and that the least slight may direct it in a moment from the one to the other. We believe, ere this, that the last of that curious race are gone from amongst us, who never had a black neckcloth, always wore top-boots, and had never been in a railway carriage. Still there may be occasionally something of a reaction. It will take time to thoroughly re-establish public confidence in the "Great Eastern," and a crash on the line tells on the dividends in many more ways than the mere charge of costs and damages.

Perhaps the agency of steam has never been more safely employed than in the pursuits of agriculture. It is true that its introduction here has been only very gradual; although this alone may go far to account for the impunity with which so proverbially dangerous an ally has been secured to us. Seldom has the farmer determined on the purchase of an engine until he has made himself acquainted with its management and capabilities. Even further, he as rarely brings it home, but he engages an engineer from the works to instruct his own serving-men in its proper conduct and administration. It is all to the credit of the agricultural labourer to add that he has, even at this comparative outset, ably responded to the call made upon him. We argue still, and sensibly enough, that he must be better educated to meet the increasing demand upon his intellectual capacity. But as it is, he has at least been well represented. We will not venture to say that the common run of farm servants are equal to the care of a steam engine; although on the other hand, such faith as has been reposed in them has seldom indeed been misplaced. We hear continually of the recklessness of drivers, the carelessness of stokers, and so on: it is almost impossible to open a paper without reading of some melancholy mishap, where steam has gone wrong by rail or river. On the contrary, any such an accident on the farm is as unusual as it is elsewhere of common occurrence; and yet we now have the engine in almost as general use as the plough. We watch the smoke coming up from remote corners and out-of-the-way holdings: we find Clayton and Shuttleworth comfortably housed so far from home that we wonder however they got so far; or Tuxford's, or Hornsby, turning their prize plates upon us in regions where we should have thought no power in the world could have penetrated. In fact, steam when only associated with agriculture surely bears a charmed life. We talked of the stupidity of the labourers, and they encounter it intact and invulnerable. Insurance offices threatened to raise their rates when put in proximity with so inflammable an agent, until quickly brought to see that no harm comes of it, and that everybody uses it. The sacrifice of life and property has been about proportionate, and, if we could only command the returns, it would be extraordinary to see how little the farmer has suffered in comparison with other classes.

But at length Steam has claimed his victims even from amongst those he has so long favoured. The boiler of an agricultural engine has burst, and a lamentable loss of life has been the consequence. Still, it must be borne in mind, this did not happen on the homestead, with the machinery in the hands of the occupier and his own people. On the other hand, the accident occurred with an implement that was on public exhibition at the time, and under the control of a professed engineer in the employment of the firm which sent the engine to Lewes fair. A full report of the calamity will be found in the following pages. What we wish here to counteract is any undue effect which may be attached to such a misadventure. The employment of steam machinery in agriculture has, we must most emphatically repeat, been attended with the utmost safety and success. So far from the farmer and his servants having proved unequal to cope with it, none others have directed its wondrous power with more care and less cost. Even this accident, we must say again, has little or no such application. The engine was in the hands of a manufacturer and his staff. And yet we do not speak too soon, when we find a daily paper prefacing its report of the inquest with such commentaries as these: "It is feared that the accident will give a great check to the employment of steam-machinery by farmers, many of whom have been heard to say they shall revert to horse-labour." And, again: "Great alarm is felt at the fact of one of these agricultural steam-engines exploding, because it is evident that the men under whose management they are placed are not competent engineers, but the best and most intelligent of the farm-labourers." The facts of the present case make this scarcely logical, for the account goes on to say: "It was, however, the engineer of the manufacturers who was attending the engine at the time of the explosion." In a word, a very great amount of experience tends to assure us that "these agricultural steam-engines" *are* safe with "the most intelligent farm-labourers," and that almost the only very serious accident with one of them has been when it was in the charge of "competent engineers." There are many causes and reasons why an engine might explode when on public exhibition, that would not, if merely in everyday use.

But even this might be entertained with every credit to our manufacturers generally. There is scarcely anything that is more constantly on exhibition and in *competition* than the steam-engine. For many years and for a variety of purposes it has been one of the chief attractions of all our Agricultural Meetings, either large or local; and yet we remember no such accident as this in all our knowledge of such gatherings and trials. Indeed, the catastrophe at Lewes Fair must be regarded as altogether exceptional; and it may be impolitic, if not impossible, to make more of it than what common caution shall already have suggested.

FATAL ACCIDENT AT LEWES FAIR.—EXPLOSION OF A STEAM ENGINE.

At the Lewes fair it is customary for the agricultural machinists to have a display of implements and machinery. At the last, however, the only steam thrashing machine exhibited was that belonging to Messrs. Cheale and Sons, of Southover (manufactured by Hensman, of Woburn, Beds), which was placed not far distant from the wattles on the eastern side of the Wallands. It appears that owing to the heavy rain which fell on Wednesday there was no opportunity for getting the steam up till after mid-day, when the clouds broke and appearances indicated fine weather. At this time the engineer began to get up his steam, and this attracted a considerable number of persons to witness the action of the machinery. Unfortunately it had not been long in work before the boiler burst, with a loud explosion, scattering death and destruction around, and creating a feeling of despondency amongst the assembled hundreds on the ground, and a most distressing sensation throughout the town.

The weather up to twelve o'clock was very wet and boisterous, but at noon the sun appeared, and the engineer prepared to get up the steam to exhibit the application of his engine to driving various machinery. All appeared to be going on smoothly, when a tremendous report was heard. This was speedily discovered to be the explosion of the engine, which instantly rose from the ground amidst a dense cloud of steam and smoke, and passed through the air a distance of between thirty and forty yards, when it struck the ground and twice rebounded a distance of between fifteen or twenty yards. The scene which now presented itself was of a most heart-rending description. John Gold, the engineer, who had been thrown a considerable distance from the engine, was found dead upon the ground; Reuben Lemport, labourer, of Findon, and Jesse Upton, labourer, of The Cliffe, Lewes, who were standing a short distance from the engine, were also found to be dead; while Albert Hilder, a young man from Horstedkeynes, was seen strugging in the last agonies of death. A boy named Thomas Woodhall, about 12 years of age, in the employ of Mr. Fuller, Norton Farm, near Brighton, had been dreadfully scalded; and a number of other persons more or less seriously injured. William Sayers, cowman, of Hurst, was cast about 50 yards by the force of the explosion; in the course of a short time, however, he had so far recovered as to render it safe to remove him to the County Hospital at Brighton. A labourer from Newick, named Cox, was likewise dangerously injured; he, too, was removed to the hospital in Mr. Holmes's break. A fine colt, shown for sale by young Hilder, and two sheep, were also killed; other sheep were more or less injured. Mr. Cheale, who had been superintending the engine, and other machinery in the field, was knocked down behind a chaff-cutter, which he was preparing for work, but fortunately escaped without any serious injury, and was able to attend the inquest.

Mr. F. H. Gell, County Coroner, held the inquest at the Elephant and Castle, at four o'clock on Thursday afternoon.

After swearing the jury, he said they were about to enter upon a very important investigation—important both as concerned the public and the parties interested. The use of steam-engines for agricultural purposes had now become so general, that they could not inquire too minutely into the circumstances attending the accident. He would not presume, in the present state of the case, that any one was to blame; but it would be necessary, in the event of any ulterior proceedings being taken, that they should have the best information as to the cause of death. He did not think it right to anticipate the evidence in any way, because it was much better that it should fall fresh upon their minds. As he had just said, however, in case any future proceedings should arise out of the accident, it would be better that the precise cause of death should, if possible, be pointed out by one or two medical men, who should accompany them to view the bodies of the deceased, and point out the injuries which had resulted in death.

After some evidence as to the identity of the deceased,

Dr. Smythe was examined: He said, yesterday, about ten minutes after one o'clock, I was sent for to the fair. I rode there directly. I saw one man, a stranger to me, but whom I have since ascertained to be Jesse Upton, being carried on a hurdle to Lewes, dead. There were also two others quite dead, Reuben Lamport and John Gold. Albert Hilder was living, but died a few seconds after I saw him. I also saw a boy, named Woodhall, who had been scalded. I did not see the two men who were taken to Brighton. The three dead bodies were much mutilated; the deceased appeared to have died almost instantaneously. The injuries were such as might have been produced by the fall of an engine, or any ponderous body, upon them. I remained with Hilder during the few moments he lived. To-day, with Mr. Murrell, I have examined the four bodies lying in the adjoining room. They are those of John Gold, Jesse Upton, Reuben Lamport, and Albert Hilder. With respect to Gold—(we have only recorded those injuries that may have produced death)—he has a fracture of the right thigh, a fracture of the joint of the right knee, a lacerated wound of the pelvis, a compound fracture of the thigh bone, fractures of the frontal and temporal bones, exposing the brain. Those I believe were the causes of death; the injuries about the head were the immediate cause of death. Any one of the injuries would have been very serious—hardly one of them that might not have produced death ultimately, so extensive were they. As to Jesse Upton, extensive fractures of ribs on both sides, producing injury to the lungs and heart. The injury was quite sufficient to have produced immediate death. Reuben Lamport's injuries were principally in the head; extensive injury to the head, lacerating the brain, and quite sufficient to produce immediate death. The next body is that of Albert Hilder—left jawbone very much fractured, severe scalp wound, and fractures of other bones, compound fracture of left wrist joint, extensive lacerated wound of hand and wrist. Death in this case was more immediately caused by the injuries to the head.

By the Foreman—A piece of iron blown away from an engine might have caused the death of Hilder.

By Mr. Briggs—The whole of the injuries I saw on Hilder might have been inflicted by the same piece of iron, but it must have been a large piece; or indeed several pieces might have struck him.

Mr. W. H. Murrell, surgeon, examined—About a quarter past one I received a message to go to the fair, as a severe accident had occurred. I directly mounted my horse and rode towards the ground. On my way I met the body of Albert Hilder, which was being conveyed to the Elephant and Castle, and, at the request of the policeman, I accompanied the body to the inn. Having been told that there were other medical men on the ground, I waited at the Elephant and Castle, and there received the bodies of Gold and Lamport. They were all dead. I have this afternoon, with Dr. Smythe, examined all the four bodies. I have heard the evidence of Dr. Smythe, and I perfectly agree with what he has stated.

A question was here put by a juryman as to the probable cause of death.

The Coroner remarked that conjectures might easily be raised as to the cause of death.

Mr. Briggs said he took it that the injuries in Hilder's case might all have been inflicted by a large piece of iron.

By Mr. Briggs.—Deceased had a serious blow at the back of the head.

Mr. Briggs wished to mention a matter of some importance to the jury. After the accident, a portion of the engine had been removed by one of Mr. Cheale's men; but Mr. Cheale had since had it removed to these premises, for the purpose of having it handed over and placed in the custody of some responsible person. Part of the engine had been blown in one direction, and part in another.

The Coroner said the jury would probably wish to view the place of accident with the part of the machine still on the ground again before the inquiry was brought to a close.

Mr. Briggs said that all he wished at present was that some responsible person should have charge of the machinery.

The parts of the engine on the premises were then brought into the room; and, after a short conversation, Capt. Mackay, who had entered a short time previously, undertook that his men should take charge of and watch the machinery.

The Coroner said he had already prepared a letter to the Secretary of State, who would probably send down a civil engineer to examine and report upon the engine.

The inquiry was then adjourned.

On the inquest being resumed, the Coroner stated he had received a letter from the Railway Department of the Board of Trade, announcing that it was not the intention of the Government to send down an inspector to assist in conducting the case. Under these circumstances, perhaps, the jury would feel it desirable to secure the attendance of some professional man.

George William Bailey examined by the Coroner: He said he was a miller, and attended the sheep fair at Lewes on the 21st. About a quarter of an hour after the explosion occurred he had a conversation with a man named Plumber, who told him that shortly before the accident he had noticed that the pressure upon the engine was 30lb. per square inch, and he had tried to lift the safety valve, but found himself unable to do so. He added that no steam came from it previous to his lifting it. Plumber subsequently repeated his statement in the train in going from Lewes to Brighton.

By Mr. Briggs, for Messrs. Cheale: No one was present during the first conversation, and witness did not remember the precise words that Plumber used. No remark was made as to the cause of the accident, nor did Plumber state that the safety-valve was in an improper condition for working.

Albert John Skinner said, he was standing about a yard and a-half from the engine at the time the explosion occurred. Gold was driving the engine, and witness saw him turn a tap on the right-hand side of the engine, which permitted a little steam to escape. He then stirred up the fire and soon afterwards the explosion took place. Witness noticed a little water drop out of the whistle, and heard Gold say that he must soon start her. He sustained some trifling injuries in the face.

John Heywood examined: Was in the employ of Messrs. Cheale, as foreman, and undertook to drive the engine that exploded, in conjunction with John Gold. He was not with the engine on the day of the accident, and did not examine it before it was sent to the fair. Immediately after the accident occurred he was ordered by Mr. Cheale to go up to the engine to clear away the pieces of the chaff-cutter. A cart was in the field to carry them away. He obeyed his instructions, and picked up several pieces of the chaff-cutter, as well as the safety-valve of the engine. He did not examine the safety-valve, and consequently could not say whether it was in a fit state for working or not. He had known Gold for many years; and, as far as he could form an opinion, Gold was quite competent to undertake the management of an engine.

By Mr. Gerrard: I do not remember telling any person since the accident that Gold was not a fit person to drive an engine—that he was flighty, and too much in the habit of getting up too much steam. Before the accident I did make a remark to my father to that effect respecting Gold. The remark, however, was made under excitement. When I have been with him he had driven at such a rate that I have refused to feed unless he kept the steam down.

By Mr. Hilman: I do not consider myself an engineer, but merely an engine driver. My experience in engine driving has extended over a period of 14 months.

By Mr. Briggs: I have more than once had occasion to ask Gold not to drive so fast, or he would shake me out of the box. I do not know that he ever pushed the steam beyond the safety-valve, but I have repeatedly heard it blowing off. I have known him work the engine beyond its capabilities, and I have also seen him alter the lever so as to enable the engine to go faster. Before starting the engine the boiler was filled with water. I saw the engine tried twice in steam, and on each occasion the safety-valve was fixed at 45. At that figure the steam would blow off. When I picked up the safety-valve I believe it was lying about six or seven yards from the engine.

By the Jury: The engine always did its work very well. When I remonstrated with Gold as to his driving I apprehended personal danger if he continued the speed at which he was working the engine. Gold was a steady man, and was not given to drinking when he was out with the engine. I never heard Gold express any fear of the strength of this particular engine. I have worked several engines, but I never found the safety-valve stick when it had not been used for a few days. When we have had dirty water we have often taken out the valve and wiped it before starting. My wages from Messrs. Cheal are 24s. a week.

Michael Baker, a whitesmith, said he was upon the hill with Mr. Garnum shortly after the explosion. They had some conversation, when Garnum said he had seen the steam oozing out between the plates, and asked witness to go round to the engine and see the place. Witness did so, and Mr. Garnum pointed out the place.

John Sadler, of Brighton, foreman of the locomotive department of the Brighton Railway, was then examined. He deposed that in November last he received a portable steam-engine from Messrs. Cheale for the purpose of having it repaired. He received instructions to repair the fire-box and put a few new ferules on the tubes. He was also requested to test the boilers by hydraulic pressure. He put three additional plates and six extra stays on the fire-box, and then tested the boiler to a pressure of 80 lbs. He also put a ferule on the spring-balance, so that a pressure of more than 45 lbs. could not be obtained in the boiler. When the engine was returned to Mr. Cheale it was perfectly safe. Since the accident he had examined it. He found the outside shell of the fire-box blown completely away. It appeared to have given way at the root of the angle iron. At the police-station on Saturday he was shown the safety-valve. It appeared perfectly free and uncorroded. It did not seem to have been in the slightest degree fast, and so far as he could form an opinion it was in a proper working condition. He also saw the spring balance, which was disconnected in consequence, he presumed, of the force of the explosion. It still had the ferule on it which he put on at Brighton. From the examination he had made of the engine he had arrived at the conclusion that the accident had either arisen from over pressure or from inferior materials. The material of the boiler, so far as he could judge, did not appear to be very good. He thought it required strengthening by additional stays. While the engine was undergoing repairs he had not looked into the boiler, and therefore could not say what stays there were in it. After testing it at 80 he considered that it would fairly bear a pressure of 45 lbs. He thought it would have been quite safe to work it at 45 lbs. pressure. The stays he put in were longitudinal stays, but there ought to have been a few more stays in the fire-box. As a general rule he considered it advisable to employ an indicator on the engine. The spring-balance, however, if properly attended to, would indicate what pressure there was in the boiler.

By the Jury: Messrs. Cheale's instructions respecting the repairs were given in writing, but were of a special character. He did not understand that he was to do everything that was necessary to put the engine in a satisfactory state of repair. It would have been impossible to detect the inferior nature of the material unless there was a fracture. He considered hydraulic-pressure of 80lbs. to be equal to 80lbs. steam-pressure. The boilers of the Brighton Railway Company were tested at double the pressure they were intended to be worked at. Messrs. Cheale's engine was made to work at 70lbs., but he reduced it to 45, because he thought that portable steam-engines never worked at a higher pressure. The pressure in a boiler was equal all over, and would not be greater at the centre than any other part. When the engine was sent to witness for repairs he saw that it was not a new one; but he did not think it was so old that it was not worth while to lay out any more money upon it.

Isaiah Cheale said: I am a partner in the firm of Cheale and Sons, agricultural-implement makers, Southover. On the occasion of the sheep-fair at Lewes, on Thursday, I sent several implements there for the inspection of farmers and others, and among them an agricultural steam-engine. Before sending it away I filled the boiler with fresh water. The engine appeared to be in proper working condition. It was sent in charge of one of my men, but I do not know which. I was not at the fair myself, and consequently did not witness the accident. I was prevented from going by the roughness of the weather. I had worked the engine to the highest pressure five weeks before. That was about 45lbs. to the square inch, and the safety-valve blew off steam at that pressure. I did not make the engine, but bought it at an auction at Hever Castle, Kent. The engine had been out about four years; it was made by Messrs. Hensman and Sons, of Woburn, Bedfordshire. It has done about two days' work since I have had it, and as soon as I had got it home I examined it minutely, and entered into communication with Mr. Craven, superintendent of the engineering department of the Brighton railway-engines, with respect to some repairs to the boiler, and placed it in his hands. Among other instructions I told him to thoroughly test the strength of the boiler before he sent it back to me. It was returned to me on the 27th of last November, with a certificate to the effect that they had repaired the boiler, and tested the boiler to 80lbs. the square inch by the hydraulic-pump of the London, Brighton, and South Coast Railway. He put the engine together, and afterwards obtained permission from Mr. Vowles, a farmer of Southover, to work it with his thrashing-machine, and he then found that the steam blew off at 45lbs. There was some defect in one of the slide-valves, so that the engine did not make the most of the steam that was generated. I faced that valve so as to make it steam-tight. It has not been used by me more than one day since it has been in my possession.

By Mr. Brigg: The valves attached to the engine are the safety-valve, the throttle-valve, the salter-spring balance, and the water-gauge; there are two more safety taps, one called the steam-tap and the other the water-tap, to ascertain the condition of the water in the boiler in case any accident happened to the water-gauge. When the engine first came into my possession the safety-valve was capable of being screwed down to a pressure of 70lbs. on the square inch, but when it returned from the Brighton Station it was altered so as not to screw down beyond 45; and if it was in good working condition the steam would blow off above 45. I cannot see any defect whatever in the iron.

The various pieces of the engine spoken to by the witness were brought into court and explained to the jury.

Examination resumed: The man who filled the engine in the morning of the accident poured too much water into the boiler, as was shown by the water-gauge, and I took out two or three pailfuls. That would leave between two and three inches above the top of the fire-box before the engine was started and before any fire was put in. I saw the fuel for the engine put up in a cart, and a few shavings to light the fire with. I sent one sackful of coal, together with some brought out of the house. Probably about 32½lbs. of coal only were consumed, the other being brought back. The horizontal and perpendicular parts of the boiler were fastened together by an angle iron, to which the plates are riveted, and the fracture in this instance occurred in the angle. Generally speaking, the angle iron is the strongest part of the boiler. I find that this angle is not so good as is used now. It has not so much "root" to it; but it would, nevertheless, require very strong pressure to have burst it. On the day of the fair the only work which the engine had to do on the hill was to drive a chaff-cutter, under a pressure of 10lbs., and there could have been no inducement for the engineer to play any tricks with it. John Gold, who worked the engine, has been in my employment, off and on, for 20 years and upwards. He used to work a good deal as a fitter and turner in my fitting shop, and I found him a general handy man: he used to do pump work, wire work, painting, and all kinds of things. I commenced to use steam locomotive agricultural engines six years ago. I sent out Gold first to feed the engine, and he undertook to take turns in the working of the engine. He became very competent, and was sent out to instruct others. He had been several times sent out to fix new engines, and superintend them until he had instructed others. He was completely competent to work such an engine, and would have been working it that day at a farm had it not been for the wet weather. Gold left my premises on Thursday from a quarter to eleven to eleven. Small engines generally have not got a stay running right through from front to back.

By Mr. Hillman: Gold was with me on both occasions when at work. It was usually covered over with sail cloth. Five extra stays were put by Mr. Craven, and he also rendered an accident less likely by preventing the safety-valve being screwed down to obtain a pressure beyond 45lbs. to the square inch. I gave £34 for the engine.

By the Jury: It was a 4-horse power engine. Gold was like some other men, he got tipsy sometimes, but he had not lost a day for the last two months through drunkenness. He used to earn 24s. a week when he was out, beside his board. When he was in the shop he had 18s. a week. On the morning in question he was perfectly sober. The engine blew off freely at 45lbs. when I used it. It was not a very saleable article, because it only worked a portion of the farm implements, whereas the present implements that are let out will clean the corn and put it into the sack fit for market; therefore there was no great demand for this, which only did a portion of the work. The engine had no pressure gauge, and not one in a hundred of these portable agricultural locomotives has. It would be a great means of securing safety if they had. I should think that hydraulic pressure as a test would be better than steam pressure, because water is less elastic than steam; but I am not aware that Ransome's people use steam pressure as a test. Occasionally a spring valve will get set, when the engineer should give it a knock, and it would release itself. Gold generally went out to work a 7-horse engine which we let out. I am aware that an engine of a similar kind, and made by the same maker, burst about two years ago at East Grinstead. The construction I put upon the fact of Mr. Craven having put the pressure to 45lbs. was, not because it was not able to bear more, they having tested it to 80lbs., but because, as a general rule, the Royal Agricultural Society did not admit any competing high-pressure steam engnies in which the pressure was more than 45lbs. to the square inch, and not because they considered it weak. I had no means of ascertaining whether the angle iron was good iron or not. The general practice now is to overlap, which renders the angle stronger. If any one was malicious enough to weight the valve or put a wedge under the lever, then it might go on producing steam until the pressure would be such as to blow the boiler to atoms. I do not at all know what has been the cause of this accident. At first I thought Gold might have been heaping on fuel, but I find so little used that I could not attribute it to that.

By Mr. Briggs: A series of experiments has been made by Mr. Fairbairn to ascertain the ratio of time that it would take to generate steam in a close boiler with a full fire, and it was found that it would take 20 minutes to increase the pressure from 11lb. to 100lb. per square inch. There must have been a great pressure upon this boiler before it burst.

Mr. David Cheale (son of the last witness) said that he was in partnership with his father, and on the morning of Thursday he went to Lewes sheep fair, and saw the engine on the ground before the explosion. This was about eleven o'clock. No person was with it at that time. The engine was standing about 20 or 40 feet from some hurdles, and there was a footpath between them and the engine. He assisted Gold in uncovering the engine and getting it ready. Gold having oiled the bearings, put some straw into the fire-box, and about twelve o'clock the fire was lighted, and he (witness) left the engine under Gold's sole control. Witness saw the engine again a quarter after twelve. Gold was with it at that time, but no one else. I then went down to a booth to get change for a sovereign, and returned about half-past twelve. I went up towards the engine, and saw Gold. I asked him how soon he would be ready to drive a chaff-cutter, and he replied that he had not sufficient steam as yet. Witness was standing by the chaff-cutter, and Gold lifted the safety-valve, and he walked further round the engine and turned a tap; and about ten minutes after that the explosion took place. He was still standing near the chaff-cutter.

The Coroner: Did he do anything else?

Witness: I saw him round by the pen, but I could not see what he did. When I asked him if he was ready to work the chaff-cutter, he said that he could not get the fire up, that the coals were damp, and he could not get the fire to burn, that it might be another five or ten minutes before he could get the steam up, and almost immediately after that the explosion took place. I was knocked down by the chaff-cutter, which was blown to pieces, and when I got up I found Gold lying dead on the ground. Some person said, "Fetch your horse and cart," and he went for it. That was to take the bodies away. I saw no more of the accident. When I stood by the engine before the explosion I saw there was water in the boiler by the gauge, and I also noticed that when Gold lifted the valve steam issued. I heard it as well as saw it.

By Mr. Briggs: This valve was lifted ten minutes before the explosion took place. Previous to the fire being lighted, I said, "Keep a slack fire, Gold; because, if the weather does not hold up, we shall not be able to keep the strap upon the cutter." I saw a great deal of black smoke coming from the chimney after Gold had tried to light the fire. When the engine is moving the steam passes through the chimney, and the fire is consequently greatly excited by the draught; but that is not the case when the engine is not working. The engine was standing quite on a level, and some men were engaged in cutting away the ground under the wheel; the foremost wheel had been cut under, and the sinking of the engine would be quite sufficient to set the water in motion, and make a difference of an inch or two in the water over the top of the fire-box.

By Mr. Hillman: I had not requested Hilder to move away because I apprehended there might be an accident, but I did so because he kicked over my plough. No complaints were made, or fears expressed, that the engine was not safe. It had not been examined and refused that day, because it was pronounced to be unsafe. It was there for sale, or to let.

By the Coroner: After I returned from Southover I requested the police officer to take charge of the engine.

By the Jury: I could not form any idea of what pressure there was on the engine boiler at the time that Gold lifted the safety-valve. He said he had not power enough of steam to drive the wheel, and he tried to turn it with his hand, but the engine would not start it. From what I could see the steam never was up to 45lb. pressure on the square inch. Gold was busy with me the whole time, lifting and setting other machinery. I did not see any one fetching him any beer.

By the Coroner: I am not able to form any opinion as to the cause of the explosion.

William Brown, a labourer, who witnessed the catastrophe, swore that he saw Gold previous to the explosion try the safety-valve, and that a small quantity of steam came out.

Spencer Stephenson sworn: On the 21st of September I was on the hill, and saw an agricultural steam-engine there in charge of Gold. I had some conversation with him. I saw him turn a cock, and he said, "We've not half got her up," or "She's not half up," or something of that sort. I saw him put some coal in the fire-place, and very shortly after that the engine exploded. I was blown away. At the time I was standing within three feet of Gold. I remember just seeing the flashing of fire from the engine, and shortly afterwards I found myself about ten yards distant from where the engine was. I felt a shock, but a piece of tarpaulin that was there flapped around me, and probably saved me. I saw Gold put five shovelsfull of coal into the fire.

Henry Plummer, an attendant upon the agricultural steam-engine belonging to Mr. Weeks, stated—I went up to the engine before it exploded, and put my hand upon it. The fire, I think, had not been lit long, and I should not have thought that there was any pressure of steam at the time. The gauge was screwed down from 25 to 30lbs. on the square inch. There was a slow fire in the fire-box, and I thought the fire had not been long enough in to produce steam of very great pressure.

Stephen Goodman, fireman of the county prison, stated that he knew the deceased John Gold by sight, and that he was in charge of the engine at the Lewes sheep fair. He also saw Gold stir the fire, and get the engine ready; and he saw him open the steam-tap, and the steam came out in pretty great force. He did not make any remark about it, but he thought it was not very safe to stand by, so he turned round, and walked away. No steam escaped from the safety-valve at that time. He saw steam issuing from a crevice in the plates, and he was sure that he should know whether it was issuing from that crack or from the wet surface of the boiler itself. Stood close to the engine at first, but thought it would be safer to move away.

W. C. Wells said that from the force with which the explosion occurred it was evident to him that the pressure must have been very high, probably 50lb. or 60lb. to the square inch. All safety valves were liable to set, and required great care in watching. He was not able to tell what would be the force of the resistance of the particular iron used in the construction of this boiler.

By the Jury.—Sometimes cheap engines were made without a pressure-gauge, but no boiler should be made without one, because, in case the safety valve set, and the pressure in the boiler got above the point indicated by Salter's patent gauge, there would be no means of indicating the pressure on the boiler.

Mr. J. Jackson, an engine-maker at Brighton, who witnessed the explosion, said that he had examined the engine, both before and after the explosion. After the explosion he found the outside fire casing was blown out, and the wheels blown off. In his opinion the boiler was deficient in stays, and it never ought to have been sent out of the workshop without their being put. He had a similar boiler to this in his possession, which he strengthened by extra stays. All flat surfaces were stayed, or ought to be. He should not think a pressure of 45 would have caused the fracture; but it would not have been safe to have worked an engine like that at such a pressure if there were no stays. He never sent his engines out without indicators; the indicator would tell the amount of pressure even if the safety-valve was closed.

Mr. Hill.—What do you think is the cause of the calamity?

Witness.—Well, sir, I think it is owing to the absence of a proper number of stays.

By Mr. Briggs.—I never turn an engine out without them. I do not think an engine tested by hydraulic power to 80 ought to be worked at 50, or even 40, if the end of the boiler be not stayed. I should not think that a pressure of 45 would have lifted such a weight or thrown it such a distance. I have not the slightest doubt that there was sufficient water in the boiler at the time. I saw smoke issuing from the chimney about eleven o'clock, or perhaps half-past. It would take 50 minutes to get up the steam.

By a Juror.—An hour and a quarter would be amply sufficient to get up a good quantity of steam?

Witness.—It would, sir.

Alfred Eade, a blacksmith, at Buxsted, was at the Lewes sheep fair. I saw a steam engine in the fair, and went towards her. I saw a man with it, whose name I ascertained afterwards to be John Gold. A friend was with me, my brother-in-law (George Felwick). The engine appeared to be one which my son had described to me. Another man, Spencer Stephenson, came up to us, whilst we were looking at the engine. Stephenson spoke to Gold in my hearing, but I did not hear what Gold said. Soon after Stephenson spoke to him, and Gold turned the tap—at least some one did—and fixed a strap on the wheel; the strap with which they drive the chaff-cutter. The strap was too long; the engine required moving backwards. After this I saw some one at the wheels to lower the engine, which Stephenson and I assisted to run back. Gold then tried the safety-valve. The tap (the right-hand one) was turned before we moved the engine. Steam appeared to come out very sharp. After this he turned it back again. He seemed to have some difficulty in stopping it; it leaked, I do not know whether it was the upper or lower tap on the right-hand side; but I do know that it was not the tap of the water-gauge. After this I saw Gold put his hand on the safety-valve; when he did so no steam escaped. He appeared to lift the top, but did not move it. In about five minutes the explosion took place. I was forced back a yard two. At this time I had been standing about two yards from the engine, close to Stephenson; I was covered with steam.

By Mr. Briggs: Gold laid his hand upon the safety-valve, or part of it; he did not open it. I did not hear Gold say, "Stephenson, I have not half enough steam yet;" but I am deaf. I was not looking at Gold at the moment of the explosion. I did not see him take a bar in his hand to give a motion to the wheels. The engine was quite still just before the explosion. She had been quite still two or three minutes after it was attempted to put her level. Stephenson came up almost immediately after I was there. When Gold put his hand on the valve, the plug rose up, and he knocked it down with his hand.

Supt. Dawes was within 50 yards of the engine when the explosion took place. I saw her rise in the air, as far as I could judge, eight or ten feet; she turned three somersaults; she went over very quick. She fell within 18 yards of me. I I did not observe she touched the ground the whole time. I doubt whether she rebounded at all. I saw the marks in the ground. Only one pen of wattles was between me and her. If she had turned over, the chimney must have touched the ground.

Mr John Chester Craven, locomotive engineer to the London and Brighton Railway Company: I recollect Mr. Cheale writing to me in November, 1858, saying that he had got a small engine, and wishing me to repair the fire-box and tubes; he also said that when done, we were to test it. Mr. Saddler did the work, repairing the inside fire-box and tubes, and returned it to Mr. Cheale. I believe that five stays were put in; but I don't know of my own knowledge in what state the engine was. Since the explosion I have seen the engine; this was on the Saturday after. Mr. Molineux, Mr. Saddler, and I came together—more for information than anything else. We examined the pieces at the police-station first; then we went to the field, and examined the boiler and the distance she had gone—I think 40 yards. We understood that she turned three somersaults in her progress, and we came to the conclusion that she must have had very great pressure inside to make her to do that. (Witness here gave an account of an engine exploding in another part of the country, in confirmation of Mr. Dawes' opinion—that she did not reach the ground in her progress; in the case referred to, the engine went through the roof of a building, and made two somersaults without touching the ground. Mr. Fairbain came to the conclusion that the boiler must have had 400 lbs. pressure upon it). In the present case, in his opinion (and he had worked out the question) the pressure on the boiler must have been 145lbs.; that is, supposing she had been made of Staffordshire iron, without any stays at all. I consider Staffordshire iron of inferior quality; they never make a boiler but of Yorkshire iron. We looked at the angle-iron on Saturday morning, and found that it had given way at the last place we should have expected; we should have expected it to have gone at the rivet holes. I should certainly never have built an engine of angle iron of such a weak section. The boiler ought never to have been made of such iron. If I had been taken to look at the boiler before the explosion I should have thought the front plate well stayed. Now I see it is not. (Here witness pointed out what he meant, in reference to the system of staying, and illustrated his meaning with a coloured drawing.) Either Mr. Cheale or I might have thought the boiler was sufficiently stayed. In fact, I should have never dreamt but that she was well stayed, from the appearance of the rivets. (Witness also handed a drawing of the explosion to the jury, and then proceeded)—I should not consider transfer stays necessary for such a small fire-box, working at 45lbs. pressure.

The Coroner: As you have made a statement in reference to the pressure, can you account for the excess of pressure?—It must have been 150. But there is something at which we have not got at yet in explosions; and I should recommend that no boiler be used without an indicator.

A juryman: Who is the patentee?—There are two, one a Frenchman and the other a German.

The coroner: Supposing the safety valve had acted freely, could the explosion have taken place?—No, certainly not; steam must have escaped.

Would 32lbs. weight of coal be sufficient to raise the pressure to 150lbs.?—No; not without a lot of wood and shavings. You see that is a very small fire-box: it would not take much fuel to raise it to 40, and then still less in proportion afterwards. From 50 you could raise it to 80 in ten minutes; it then almost jumps up like lightning.

By the coroner: There are two ways in which a man could lock the valve—either by a wedge or by pressing upon it. The top of the valve is above the seating. It might get jammed, from its peculiar construction. It has not as much room round the casing as is usual. It would be liable to get choked with foreign matter. Supposing the valve to be set fast by foreign matter, on applying the spring balance steam might not escape.

Can you form any opinion as to whether it was stopped or not?—No.

Would the explosion have a tendency to loosen it?—No doubt it would.

Do you believe the valve to have been stopped at the time of the explosion?—It is impossible to say.

If the valve had not been stopped, how could there be a greater pressure than 45 lbs.?—There must have been a great pressure. I can't say; but there is something about explosions which we don't yet understand, in the gases.

By Mr. Briggs—There is nothing in the appearance of the valve to induce me to conclude that it was stuck fast at the time of the explosion.

Supposing steam to have been seen to escape within a quarter of an hour, might not the valve get fast, without any connivance on the part of the engineer?—It might.

If that were so, would that lead you to conclude that the explosion arose from some defect?—It might; or, the engineer might fasten the valve hastily, especially if it did not fit closely.

But that is not a well-constructed valve?—No; it is more like a pump.

Are you aware that steam produced from water, after it has parted with its oxygen, has a peculiar character?—Yes.

And there are explosions which you really can't explain?—There are.

Without some special pressure, the explosion could not have taken place?—It could not.

The Foreman: If the engineer had lifted up the safety valve five or ten minutes before the accident, and the steam had escaped freely, is it likely the accident would have occurred?—No, it would not.

If the engines had been thoroughly inspected and repaired, would not the defect have been discovered?—No: I can't discover any defect. The only thing I complain of is the weak angle-iron. She appears to be a strong boiler. I should not have minded working it at 50lbs.

Would you have done more to the engine if Mr. Cheale had given you a general order?—Yes.

I suppose you would have put longitudinal stays?—Yes, if Mr. Cheale had wished it.

Have you the order which you refer to?—Yes.

(Order produced. It was to the effect that some of the tubes require fresh ferruling; that perhaps two new tubes were required; and that the Company were to be kind enough to try the boiler with cold water).

Mr. I. Cheale: There is another letter.

Witness: O no, there was not.

Mr. Cheale: But look here—here is another letter, dated Nov. 3.

The Coroner: Wait a moment. What is the date of that first letter?

Witness: Nov. 1st.

Mr. Cheale: Yes; and this letter is dated Nov. 3, in which you say you are busy, and request us to say exactly what we require.

Witness: We got no other letter.

Mr. Cheale: Oh yes, you did, in answer to that letter of yours.

Witness: I saw no other letter. All I know is, that we then received the boiler and did the work which we were there required to do.

Mr. Cheale repeated his statement, that another letter had been sent.

The Foreman (to witness): Then you say you would have done more work if you had been ordered to thoroughly repair her?—No doubt of it.

Mr. Molineux, who was not examined, said he coincided with all that Mr. Craven had said.

Mr. C. Easton Amos examined: I have, for the last twelve years, been consulting engineer to the Royal Agricultural Society. I have to-day inspected the exploded engine, and the result of my examination as to the cause of the explosion is—First, a badly-constructed boiler; and, secondly, an excess of pressure. The want of stays would cause an injurious action upon the angle-iron, that would have a tendency to break it. The ill-construction of the boiler is shown by the want of stays. The angle-iron might have been hollow at the back, and it now presents the appearance. To satisfy myself that an excess of pressure did take place, I have made some calculations, and I come to the conclusion that the least pressure that would throw the engine forty yards would be 117lbs. to the square inch; that is supposing the engine made one bound, but if it made two or three somersaults, the force necessary to accomplish that must be in excess of the pressure of the 117lbs. This undue pressure, although I have no fact to prove it, I believe to have been caused by the safety-valve having become fast. Its general construction leads me to conclude that there was something not in its right place. I have nothing more to adduce, in respect to this question; but I have referred to the causes of explosion, which generally take place from the want of water in the boiler; in more instances, I believe, than take place from the explosion of hydrogen gas. When the boiler is partly filled with water, the rest is filled with atmospheric air. Then hydrogen may be generated; then an explosion may take place that no safety-valve could possibly indicate its results. It is like a quantity of gunpowder in the boiler, which would indicate no pressure. A second cause, when plates became heated from shortness of water, the steam is in a surcharged state, and may be at times asserting a feeble state of pressure, as shown by the safety-valve or indicator. A sudden movement, in case of fixed engines, such as starting it, will relieve a part of the pressure, and cause ebullition to take place, and the water particles coming into contact with surcharged steam, generates pressure so rapidly that a safety valve will not discharge it. One of these causes I thought was the cause in this case, and that the sudden letting down of the engine to its level might have covered partially a heated surface, and an excess of pressure thus generated. A careful examination of the boiler of this engine leads me to suppose that a shortness of water was not the cause of the explosion, because no indications appear on the crown of it, or any other part.

M. Amos then, in answer to various questions put by the Court, said he fully concurred in what Mr. Craven had said, and that the external appearance of the boiler of this engine would deceive any practical man—even himself. He also said he should have overlooked the defects in its construction, unless he had received general instructions to thoroughly examine it. He disagreed with testing an engine, or anything else, such as a crane, by making it sustain three times the amount of pressure it is likely to be submitted to; and his reasons for disagreeing with such a test is, that the first application may so strain or weaken a part that, should a second application be made, it completes the destruction already begun.

Mr. Briggs then addressed the jury upon the evidence in behalf of the Messrs. Cheale, the proprietors of the engine, urging that there was nothing to indicate to them that the engine was unsafe.

The jury ultimately returned the following verdict:

"That the deaths of Reuben Lamport, John Gold, Jesse Upton, Albert Hilder, and Thomas Woodhall were occasioned by the explosion of a steam-engine boiler, on the Wallands, September 21, 1859, caused by the non-action of a safety-valve; and that the said engine, from subsequent examination, has been found to be of inferior quality and construction, and not properly repaired and examined before it was used. The jury feel it their duty to recommend that every portable steam-engine should have an indicating pressure-gauge; and that the present system of employing unskilled persons as engineers requires that all persons so employed should be properly examined and certificated; and that a periodical inspection of such engines should be made by competent persons."

IMPORTANT TO TENANT FARMERS.

At a Justice of Peace Court on Sept. 27—Provost Imrie presiding—a decision of considerable importance to tenant-farmers was delivered. A complaint under the statute 2 and 3 William IV., cap. 68, section 1, was heard at the instance of the Earl of Kinnoull, who charged Mr. David Todd, tenant of the farm of Nether Kerr, with having, on the 1st September last, entered or been upon the complainer's lands of Nether Keir, in the parish of Gask, in search or pursuit of game. The defender pled not guilty, and his agent stated, as a preliminary objection, that it was incompetent to entertain any complaint against the defender for trespass on his own farm for any purpose whatever under the statute. The agent for the complainer contended that, though at one time it was held that neither the tenant nor the servants upon a farm could be convicted of trespass on said farm, the doctrine was now exploded, and a variety of cases had been decided by the Court of Justiciary that they could. He maintained, therefore, that a tenant killing game on his own farm without leave of the proprietor was a trespasser under the Act. To this it was replied, by the defender's agent, that there was no such variety of cases decided by the Court of Justiciary respecting the Trespass Act, as had been stated. There were only two—first the case of Smellie, 1st June, 1844, in which the court, by a narrow majority, decided that a tenant-farmer could not be prosecuted for trespassing on his own farm, under the statute 2 and 3 William IV. That decision had never been altered. The second was that of a servant for trespass on the grounds to which he was attached, and the court decided that he could be prosecuted. The agent craved his honour to sustain the objection. After a few remarks by the agent for the complainer as to there being no distinction between a tenant and a servant, it was agreed by both parties to have the opinion of Sheriff Barclay on the point. This, after a short delay, was procured, and the learned sheriff thought the objection of the defender's agent must be sustained, in respect of the decision of the Court of Justiciary relative to tenant-farmers trespassing on their own farms not having been altered. The presiding justice decided accordingly, and stated that the sheriff's opinion was in accordance with the views he himself entertained. The defender was then assoilized, and awarded expenses.—Northern Ensign.

THE ROYAL BUCKINGHAMSHIRE CENTRAL AGRICULTURAL ASSOCIATION.

MEETING AT AYLESBURY.

The last political vestige has been stripped from the Agricultural Association of Buckinghamshire. The county has now a central society, that unites alike all creeds and classes. Mr. Disraeli, to be sure, as the Conservative member, makes his speech at the dinner; but then Mr. Cavendish, for the Whigs, in turn duly follows him—longo intervallo, no doubt; but still either side has its chosen representative. Again, the Baron Rothschild offers one prize, and Mr. Bernard another; the working committee is as carefully balanced, and the very secretaryship as discreetly divided. The good policy of all this is at once apparent. The district had never previously known such a meeting as that on 4th October. In place of the poor, tame, spiritless affair we went out of our way last season to witness, there was a really excellent show, and one full of interest and encouragement for those chiefly concerned in its success. It had not only, as it should have, the general support of the shire itself, but the open premiums were as creditably contested. One thing is very evident, from the manifestation of this meeting—the shorthorns are gradually taking strong root hereabouts. The best bull on the ground, and a very good one indeed, is the property of Mr. Dodwell, a tenant-farmer on the confines of the county. He is called Prince of Paris, and was got by Booth's British Prince, dam by Bates' Duke of Glo'ster. It might be difficult to beat such a pedigree as that, while the fact itself shows the spirit with which the people of these parts are going into the business. Mr. Robinson, of Clifton, who bred the young bull, was one of the judges here; but, of course, he stood by, and allowed his two colleagues, Messrs. Druce and Franklin, to make the award over this class. Mr. Lawford, of Leighton Buzzard, came second amongst the bulls, and first with the cows, exhibiting a heifer of very high quality, and altogether refined and blood-like in her look. Still the decision was much discussed, many of his neighbours going for a great useful cow of Mr. Howland's, which was placed second. The latter, however, was some two or three years the older of the two, as well as in much higher condition. Mr. Hutt, from Watereaton, materially strengthened this division of the show with some samples from his herd, taking a series of first prizes with them, for a cow in calf, a two-year-old, and a yearling heifer. On the whole the exhibition of cattle was very good, but its merits were entirely restricted to the Shorthorns. How one bull of some other breed came to be distinguished, will perhaps ever remain a mystery.

The display of agricultural horses was also highly creditable; and, indeed, it was scarcely possible to reconcile the excellence of this with the mediocrity of last year. Amongst many good mares and fillies a three-year-old of Mr. Seamons' stood pre-eminent. One of the judges in fact went so far as to say she was the best cart-mare in England. She is certainly very good, with a beautiful shoulder, good middle, and famous thighs and quarters. Seldom or ever was there a better one to stand behind. But her action was indifferent, although it must be admitted she was made up very fat and heavy. Of course a meeting in the renowned Aylesbury Vale would have been incomplete without a class of riding-horses; and a silver cup, given by Baron Meyer de Rothschild, brought together a very promising entry of yearlings. The prize colt, the property of Mr. E. Bennett, of Wards Hurst, is extraordinary for his size and development; and if he can only "go on" he will be a wonderful nag hereafter. He is by Middlesex, whose stock were in great force; and one of the Barons, who was present, was proportionately pleased to see them coming out so well.

The members of the Association were far better satisfied with the sheep show than the judges. There was nothing of any great character or distinctive quality, although the half-bred rams were declared by those who knew them best to be very fine. But by far the *finest* of all were a pen of ewes painted rouge et noir, to which the judges, with a poor eye to colour, had the cruelty to object. Considering the locality, the display of poultry was by no means imposing. The appropriately-named Mr. Fowler, however, helped it out with some extra entries, including good birds of several varieties. The butter was more up to the mark of what might have been expected; and the roots were remarkable for the mangolds, and what the judges did with them. They gave the prize to palpably the worst-grown collection of the whole lot; simply, as we were told, for the reason that they were by some pound or two the heaviest. If this be so, if such be the instructions, surely in future no judges can be required for such a purpose. Let the roots be only fairly topped, lopped, and weighed, and they will judge themselves.

The proceedings further included premiums for grain, and the usual rewards for agricultural labourers, shepherds, hedge-cutters, and drainers. There was also at a very convenient distance a ploughing match, in which a servant of Mr. Cook's, of Crendon, and one of Howard's implements were the winners, in a field of no less than forty-four starters. But, perhaps, the great feature of all this agenda was the last. There is no denying nor concealing the fact that the dinner and *the* speech and the *hip! hip!* have even yet a great deal to do with the Buckinghamshire Association. Nowhere else do the farmers themselves so religiously observe this rite. In few other districts would they so readily repeat the ceremony. The memory of old times is still strong on them, and as three o'clock approaches they gradually desert the field for the table, intent on getting a good place, and hearing "what Mr. Disraeli has got to tell us this time." Although, why everybody, including the cows, horses, sheep, and pigs should run off at three precisely, may be a question hard to answer? As far as we could see, it was chiefly for the gratification of being wedged up in a narrow heated passage for some hour and a half or so, while dinner was getting "ready." Everybody else was willing long before. There was not a great man missing, and why three should be announced, and something past four meant, is an unaccountable waste of the public time utterly incomprehensible. Mr. Disraeli was once more the lion of the occasion, and he signalized the union of the two societies with an address commendable for the good taste and point with which he advocated the uses of such institutions. These may be apparent enough now, but it is only a few years since when if an abuse of power could have put down the agricultural associations of the kingdom it would certainly have done so. We subjoin a report of the right honourable gentleman's speech, the only one in reality that they would listen to. Nevertheless the Marquis of Chandos, as Chairman, Mr. Cavendish, Mr. Cother (for the Judges), and others, all spoke well to the business of the day. The company must have been tired out in waiting, for they soon became terribly unruly and vehement in their calls for "a song." We confess to sharing in this pastime, until a melancholy man had sung "Tom Moody" with such a pathos and expression as we never heard before, and then, in very fear that we might hear it again, we took our leave of an assembly that was clearly getting deeper into noise and harmony.

Mr. Disraeli, in reply for the county members, said—I may congratulate you, I think, without using any extravagant terms, on the general proceedings of the day. I think they are highly satisfactory. I think they indicate progress, and the path we wish to walk in, and that the duties we are anxious to fulfil to stimulate industry, to farther agricultural science, and to reward merit, both in the county of Buckingham and amongst the community with whom we live, have been carried out to a considerable extent. None can deny, at any rate, that great and important progress has been made. Gentlemen, I remember the time, and many of you remember it also, when it was necessary to defend meetings of this character. Now, having been myself one of the earliest members of the original society, which has expanded and largely increased, both in members and importance, I can, I say, recal the time when it was necessary, on all occasions, to vindicate assemblies of this kind and institutions of this character. But the best answer to these remarks now is the fact that for the twenty-five years and more that have elapsed since their foundation and introduction in this country, we find them being literally sown broadcast over the length and breadth of the land, and flourishing in every part of it. Men of all parties, opinions, and sentiments are combined together to carry into effect the object of these associations. We find also an unanimous agreement amongst all those who have a due acquaintance with rural life as to the beneficial effects which attend the operations of societies of this description. I know there are many points open to criticism, and I wish to know what is there in this world that is not open to criticism? But if there were no critics in the world, society would soon be at a stand-still. Gentlemen, we are associated to animate skill, to elevate character, to encourage enterprise, and to reward merit. These were always considered the means by which communities are taught to flourish, and by which mankind is rendered happier. But if there had been only critics in this world, perhaps none of these means would have been had recourse to, none of these ends would have been gained; for critics never animate skill, critics never elevate character, critics never encourage enterprise, and critics never reward merit. It is peculiarly encouraging to us to-day when we remember the circumstances under which we meet. There were in this country rival societies, and although I for one feel the great importance of concentrated efforts, I must at the same time acknowledge that though there have been rival societies, great advantages may have arisen from that circumstance, because a certain degree of emulation is necessary to success. Although myself one of the oldest members of the Royal Bucks Agricultural Association, and although I think its exertions were highly beneficial to the county, yet it was subject to very unjust remarks, and its conduct and proceedings were often misrepresented. But I know very well that it is impossible that any body of men can conduct affairs without their being open to much improvement; and I, for one, never looked with jealousy or hostility upon that society which was once our rival, but which is now an equal partner and confederate with this association. There were many deficiencies which it was necessary to supply in its original constitution, and omissions to be filled up in course of time—many defects in it, to be remedied in the progress of improvement. These deficiencies, I am glad to say, have been to a great extent supplied by this society; and I believe it is for the advantage of the county that the Royal Buckinghamshire Agricultural Association and the Central Society are now united. By this union both will confer peculiar advantages. They will work well together for the interest of agriculture, not only for this county, but for the community at large. I think the show to-day may be looked on by all of us with very great satisfaction. True, it might have been better. I believe that in future it will be better, excellent though it has been to-day; for what is the use of this or any other society, unless its members and supporters are animated by the spirit of progress, and unless they feel a determination at every meeting to excel the efforts of the last? And allow me to remind you, when I talk of exhibitions of an agricultural character in this country, that the county of Buckingham has already obtained considerable reputation. It is now universally admitted that England takes the lead amongst countries in the cultivation of the soil. There are many other points in which, as Englishmen, we have been in the habit of asserting our superiority; and I need not enter now into a controversy whether this assumption of superiority be true or not. I know it has been questioned by eminent continental nations and critics in several particulars; but this I think I may say—that, on the point of agriculture, never! And for this simple reason: the test of the superiority of agriculture is the amount you produce from the soil of the country; and that country which produces the most from its soil is held to be the foremost and most skilful in agriculture. This, then, has been the condition and position of England for a long series of years. For a long time she has been famous for the cultivation of the soil and the progress she continues to make in this respect. It has been the boast of the county of Buckingham that it has occupied no mean position; and I am not aware, speaking without extravagant feeling, and with a due sense of the impartiality which becomes considerations of this kind—I am not aware, I say, that Buckinghamshire is in any way inferior to, or that it is undeserving, the position it has hitherto relatively occupied. If you go to the extreme south of the county, I can point to one of the most skilful agriculturists in England—one whose fields are cultivated in the most masterly manner. I say this on the report of one who is no friend to our system, and who has no connexion with our county. And if you advance to that district in which I have the honour and happiness to live, the Chilterns, you will find that it is a fact that, great as has been the progress made in many parts of England as regards the cultivation of the soil, there is no part in which greater progress has been made than in the stock farms of the Chiltern-hills. Whether you look at the broad lands of the farmer, or to the patches surrounding the cottages of the labourer, to their root crops, or to the land which by enclosure has been brought into cultivation, I say that there is no part of England in which, during the last quarter of a century, all that belongs to farming can be said to have shown greater progress. Nor in any part of England can you find individual examples set by landlords higher than those set by the landlords who own the soil in the district of the Chiltern-hills. Again, if you come into the favoured vale in which I have now the honour and pleasure of meeting you, all I need say is, that there is no portion of it not only of which you need be in the least ashamed, but which might be placed in competition with any part of the United Kingdom. We have still the far-famed Creslow-field, the pride of England indeed, to say nothing of Buckinghamshire, as being perhaps the largest and richest piece of pasture in the world. Having this in the extreme south, then in the Chilterns we find it is truly the queen of pasture land. Now, what has happened in the north, that portion which some years ago used to be spoken of in terms of comparative commiseration? You will find that you have done much by extensive drainage; and that excellent management is still going on at a considerable pace. But you have done more. In that part of Buckinghamshire you will find a farmer who has applied steam power both practically and extensively in the cultivation of the soil. Whilst some men were writing theoretical essays on agricultural proceedings, and others inventing machines which could never be brought into use, a Buckinghamshire farmer, Mr. Smith of Woolston, has cut, as it were, the Gordian knot, and has effected that which philosophers have only dreamt of, and which but few believed would ever be brought into practice. The county that has done all this, looking from its extreme north to extreme south, I say need not be ashamed to hold up its head by the side of any agricultural county in the kingdom. I say even that it takes the lead in the cultivation of the soil, and produces the greatest amount of food from that soil. I say, too, that Buckinghamshire has at any rate produced its due share towards the aggregate amount of agricultural skill and labour, and I feel that we should consider it a pride to belong to such a community. The meeting and the exhibition of to-day in connection with this association should, I think, be viewed as a proof of the success which has followed its efforts in the cause of agricultural advancement; and, judging from what I have seen, I hold that the society has well maintained its credit. Mind, I am not here with honeyed words to pretend there is no room for improvement. On the contrary, I feel that improvement is the necessary condition of pre-eminence, and that it is only by your continued exertions that you can continue to hold the distinguished position which you at present occupy (loud cheers).

THE ROYAL VETERINARY COLLEGE.

OPENING OF THE SESSION.

The holidays are nearly up. The very longest vacations are fast drawing to a close. The laziest of the old boys are taking their last sail, or having just another beat or so through the covers. Saving only for the upper ten thousand, who graduate from one sport and pastime to another, the office, the study, or the schools await the majority of us. Term is going to begin, or the session to open, or the class to re-assemble; and with renewed heart and strength we face the bustle and business of London once more. To many, custom has made this easy enough. We take to the collar again as sedately as the old pony who sees John approaching him with the sieve in one hand and the bridle in the other. We know it is of little use trying to shirk the yoke, but let us trust that sounding measure may at least hold a handful or two of good oats. So goes the journey through life of the old stager. With the young ones, on the contrary, the half-broken high-spirited colts, there are all kinds of hopes and fears and excitements to calm or subdue. It is a difficult task, often enough, to get them to settle quietly down to their work, and the fine hand and even temper of the artist are needed, to make them start fair and pull well together. *St!* gently there—don't fret, my lad! Let go his head, horse-keeper. All right, eh? That will do. Leave 'em alone—and now we're off!

Our illustration has at least the merit of being in good time and place. The application is left to those who, perhaps, above all others should understand it. The Session has opened, the vacation is over, and the class re-assembled. The colts are brought up again from grass, and are once more in harness. The Professor has already got hold of them—with a powerful arm, but a light hand, and a double thong, meant rather to soothe an awkward-tempered one than to hit him hard outright. On Monday, Oct. 3, being some weeks earlier than usual, and contemporary with that of the other medical schools, the opening of the Session took place at the Royal Veterinary College. Professor Simonds was selected to deliver the inaugural address on this occasion. How he has acquitted himself our readers will be enabled to judge from a report of his oration, which will be found in our magazine of this month. We have given this at great length, the more so as it is the first appearance of the paper in print. We confess to have read it ourselves with more than usual satisfaction. In its style and matter it implies a higher tone and position than we feared that of late some of the profession had been taking. The speech from first to last is that of a well-educated man to his fellows, and evidently prepared with all confidence that his audience will appreciate and sympathize with what he says. There may be "roughs" still in our medical institutions of all kinds: it would appear almost a necessity that it should be so. If, however, anything would tend to raise a young man in the social scale, to advance him not only in his vocation, but to refine his feelings and improve his conduct, it would be such an address as that Professor Simonds spoke to the pupils of the Veterinary College. It honours alike him who gave it and those who heard it; for it fixes a high standard of study and merit, that it will be a dereliction or even a disgrace not to observe. So far, at any rate, the Professor has done his duty: let those he has called upon now do theirs.

Even beyond the recommendations of this essay as a scholastic thesis or class paper, it has many claims on the more general reader, and unquestionably some on our own. A very noticeable feature, indeed, is the increased attention which the Veterinary art appears to be giving to the animals of Agriculture. There is no question but that a comparatively few years since, the one science was rather above the other. The duly qualified, passed, and certificated veterinary surgeon was simply a doctor of horses. These were his study almost as strictly as the human frame is that of the student of St. George's or of Guy's. In his own somewhat contemptuous phrase, he was "no cow doctor," and you had perhaps better send, as you have done, for the old village farrier. Of course there was some cause for this indifference. In the earlier days of the College there was scarcely any field whatever for such operation, and a veterinarian who thought to live by cattle, sheep, and pigs, would scarcely promise to make much of it. The horse, the well-bred horse above all others, was his patient, and the centre of a good hunting county would sound far better for a practice than "ever-so-many" herds of cows or flocks of ewes. In fact, the farmer was not ready for the coming man. Let his old favourite "Patty" or "Bright Eyes" be ever so bad, we doubt whether a drink from the blacksmith would not have been the most he would have thought of. And if, even after all that, she did die, it was of course to the old tune, that "it could'nt be helped."

But times are changed since then. There is many a beast worth more hundreds than a horse, and some herds of cattle far more than a stud of hunters. Nay, it is no use concealing the fact that they are quite as liable to disease, and quite as often in want of a doctor. Now that we breed in-and-in, and feed high, things are apt to be delicate. People even do say that many a prize animal is prepared, or got into condition, much on the plan our forefathers did their nags in the olden time—put three months upon grass, three upon physic, and the other six upon good stuff. There is plenty of scope here, then, for the member of the Veterinary College; for valuable stock are no longer in the hands of one or two enthusiasts like Bates or the Quartleys. They are gradually spreading throughout the country, and every district will soon require its medical man, as well up in the disorders of thorough-bred cattle as in those of thorough-bred horses. With good showing, then, would Professor Simonds not have the education of the student "cribbed, cabined, and confined" to the standard of bygone days. He dwells, the rather, with continual emphasis, on the many fresh openings now offering, and the other varieties of disease that are to be met with in other kinds of stock. In a word, a man must qualify himself as a *general* practitioner, and then can he wish for a better introduction than that of veterinary inspector to some agricultural association? There is not a county by this but has such an appointment at its disposal, while very many have two or three such institutions in action. The Professor is singularly well situated to press this point home to his auditors. Beyond a doubt the leading men have, as a rule, been above what he speaks to. In his own person, however, he offers us a striking example to the contrary. He is called upon, in turn, to deliver this address as one of the heads of the College, at the same time that his name is more particularly identified with the ills of cattle and pigs; while he strengthens all he advances on the authority of another office he holds, that of Veterinary Surgeon to the Royal Agricultural Society of England.

It has recently been a matter of some discussion whether the veterinary art has really made all that progress it should have done. In Scotland an effort is now being tried to improve upon the practice by the aid of a little competition. One school has been set up against another, and a new set of teachers and masters have volunteered to put themselves in comparison with those already in high places. Of course little harm can come of this. On the contrary, some good is already perceptible in the quality and force of certain articles contributed to a new journal devoted to the profession. In England we have no such rivalry, neither do we see that it is much wanted. "The Veterinarian," consequently, continues to be the recognized organ of the student and the practitioner; while to the former, Professor Simonds recommends it both as a work to read and to write for. We have only to hope that such a suggestion may avail as much as it is desired; for this is by far the weakest place the opposing critic could see through. It is difficult, in fact, to reconcile the masterly productions of the Professors, the strength and purity of their language, the excellence of their precepts, and the extent and variety of their knowledge, as evinced in the annual inaugural addresses, with the commonplace record of cases, deaths, appointments, and such material of which the periodical of the profession is in a measure composed. One gathers a far higher opinion of the faculty from what we hear in the lecture-room than from what we read in the Journal. It is a kind of complacent birthright we Englishmen enjoy, that no one should be able to do better than ourselves. Above all, we must be well represented; and it will never do to suffer the schools of Edinburgh or Paris even to talk better of what we may practise so well. The one grand moral of Professor Simonds' address is to give generally a higher tone to the study of the veterinary art; and even reading and *writing* must not be neglected.

INAUGURAL ADDRESS,

BY PROFESSOR SIMONDS.

The Medical Session of the Royal Veterinary College commenced on the 3rd October, being somewhat earlier than in former years. It has long been customary for the lectures at the other medical schools of the metropolis to begin on the 1st of October, or as near thereto as possible; and the Royal Veterinary College has at length adopted the same plan. Hitherto some of the most important instruction of a practical character has been crowded into too limited space of time at the close of the term. The inaugural address was delivered by Professor Simonds; and among those present to hear it, there were, in addition to the Professors, the President of the Royal College of Veterinary Surgeons, the Principal Veterinary Surgeon of the Army, and several members of the Court of Examiners, with the leading practitioners both of town and country, and many other gentlemen interested in the progress of the science. So large an assemblage has perhaps never before been seen within the college walls; and not only was the theatre crowded to excess, but even all approaches to it, as well as the adjoining museum.

By our assembling here to-day we are forcibly reminded that another year of life's existence has passed into the bosom of eternity. The wheel of time has again completed its annual rotation, and the hand on the dial plate indicates that the period has arrived when we are to resume the active duties of our station, and confront the obstacles that oppose the progress of our profession. The session we this day inaugurate will ere long be numbered with the past, and, like its antecedents, carry with it, we fear, too many evidences of good intentions being unperformed, and right resolves being unfulfilled. Let us, however, each in our sphere, endeavour to be faithful in every trust, and diligent in the performance of every duty, so that when we look back upon our course we may see few things which ought to have been done, and fewer still which ought *not* to have been done.

For the first time in the history of this Institution we commence our scholastic instructions simultaneously with the medical schools, and this day finds crowds of anxious enquirers after knowledge thronging the benches of the lecture rooms of this great metropolis, listening to the eloquence of philosophy, or the more sedate counsel of experience. Happily we can say that not only are our own benches not vacated, but on the contrary being filled to repletion, we have thereby a firm assurance that a deep interest also pervades the community on the progress of the science we profess. Besides veterans in the practice of our art, and aspirants to its honours, I see around me many kind and personal friends as well as others, and I desire to thank one and all, in my own name and in the name of my colleagues, for the honour they have done us as teachers in this institution by their attendance here to-day. The apathy which we are sometimes inclined to believe has an existence among the general public in all which relates to our calling, is thus in a great measure disproved. Such kindness cannot, therefore, fail to stimulate our exertions, and to support us in the trying difficulties which are of necessity associated with our responsibilities, and as such it has our warmest thanks.

This earlier commencement of our labours has in it many advantages, and especially will it allow of a fuller elucidation of the details of pathology at the close of the session, besides affording increased facilities or deeper anatomical research; things of the first import for the success of the students.

As a profession we must be content to follow in the wake of human medicine, "*Ars veterinaria post medicinam secunda est*," was the remark of an ancient writer, whose works, however, show how deeply he was impressed with the importance of this art, and how strenuously he laboured for its advancement. Shall it be said that we are less ardent in the cause of science, and less diligent in the use of means to elevate the veterinary profession, than was Vegetius, of whom I speak, and who lived fifteen centuries ago? Surely not, but rather let us give proof to the world, that if our art in its practical utility to the requirements of man stands second to human medicine, that as an abstract science it is fully equal and as such deserves a like support.

On occasions like the present, custom has wisely ordered that the chief objects of the lecturer shall be to bring before the pupils an outline of their studies, show them the facilities which exist for the obtainment of information, and offer them some words of advice and friendly counsel; and as it is not my intention to depart very widely from this course, so I must ask the kind indulgence of the senior and non-professional portion of my audience to bear with me in my exposition. It cannot fail to be remarked that I have laid stress on the *science* of veterinary medicine, rather than on its practice. Science may be regarded as "knowledge reduced to a system." In its extended sense it has sometimes been defined as "man's conception of God's universe," and as such its possessor is enabled to successfully grapple with difficulties, and to surmount obstacles to which others must succumb. The scientific veterinary surgeon is as superior to the man of mere routine and practice, as he is who studies the starry firmament, with a knowledge of the movements of those heavenly orbs, compared with him who looks upon them only as a thing which is. By this remark I am forcibly reminded of the eloquent address which has just been delivered at the meeting of the "BRITISH ASSOCIATION," by His Royal Highness the Prince Consort. Speaking of science, the Prince observes:

> "To me science, in its most general and comprehensive acceptation, means the knowledge of what I know, the consciousness of human knowledge. Hence to know is the object of all science; and all special knowledge, if brought to our consciousness in its separate distinctiveness from, and yet in its recognized relation to the totality of our knowledge, is scientific knowledge. We require, then, for science—that is to say, for the acquisition of scientific knowledge—these two activities of our mind which are necessary for the acquisition of any knowledge—analysis and synthesis; the first, to dissect and reduce into its component parts the object to be investigated, and to render an accurate account to ourselves of the nature and qualities of these parts by observation; the second, to recompose the observed and understood parts into a unity in our consciousness, exactly answering to the object of our investigation. The labours of the man of science are therefore at once the most humble and the loftiest which man can undertake. He only does what every little child does from its first awakening into life, and must do every moment of its existence; and yet he aims at the gradual approximation to Divine truth itself. If, then, there exists no difference between the work of the man of science and that of the merest

> child, what constitutes the distinction? Merely the conscious self-determination. The child observes what accident brings before it, and unconsciously forms its notion of it; the so-called practical man observes what his special work forces upon him, and he forms his notions upon it with reference to this particular work. The man of science observes what he intends to observe, and knows why he intends it. The value which the peculiar object has in his eyes is not determined by accident, nor by an external cause, such as the mere connexion with work to be performed, but by the place which he knows this object to hold in the general universe of knowledge by the relation which it bears to other parts of that general knowledge. To arrange and classify that universe of knowledge becomes, therefore, the first, and perhaps the most important, object and duty of science. It is only when brought into a system, by separating the incongruous, and combining those elements in which we have been enabled to discover the internal connexion which the Almighty has implanted in them, that we can hope to grapple with the boundlessness of His creation, and with the laws which govern both mind and matter."

It would be folly for me to attempt to add, by any feeble words of mine, to this eloquent definition of *general* science, or to the means by which it is to be acquired; but ours is a *particular* science, and as such it requires some especial elucidation at my hands. Until the foundation of this institution, the science of veterinary medicine remained a hidden treasure, at least in this country; but on the continent, diligent explorers of this mine of wealth were already at work. As a matter of history, it is well known that as early as 1761, France set Europe the notable example of improving the condition of the veterinary art, by founding a school at Lyons. This was soon followed by the establishment of similar institutions at Alfort, near Paris, and by others in the leading capitals of Europe. It is not, however, my intention to go into the particulars of the founding of these institutions, nor even of our own, except to remind my hearers that, as a profession, we yet fall short of the allotted period of the life of man, being scarcely seventy years of age, and consequently that the advancement of the science of veterinary medicine has to be measured by the fewness rather than by the number of its years of existence. The establishment of the college found ignorance and self-sufficiency, the sanitary guardians of the thousands upon thousands of England's domesticated animals, and even now it cannot be said that their hold is entirely destroyed. Nor is this less true of the continental states. Circumstances have required that I should become familiar with veterinary medicine as practised in a considerable portion of Europe, and suffice to say, that everywhere I have found the worst kind of empiricism to prevail. The quack, in all places and under all circumstances, builds his claim on the same foundation—*great practice and experience, and the possession of invaluable receipts.* He repudiates "knowledge reduced to a system," and brands its possessor as a visionary theorist. Thus, gentlemen, you see the battle of life which lies before you, for these evils have still to be surmounted. Success depends entirely upon yourselves, and it will be in proportion as you have "the knowledge of what you know." Do not, however, misunderstand me; it is not that, as veterinary surgeons, you are to be purely scientific men, but scientific practitioners. The useful must be blended with the ornamental. The very nature of our calling requires that we should be eminently practical in all we do. You will frequently be judged of by the amount of practical tact you show in the management of animals; but confidence in your opinion and in your treatment of disease will nevertheless be in proportion to the amount of scientific knowledge you prove yourselves to be in possession of.

I come now to *the nature and extent of your studies.* It is *the "freshmen"* who require principally to be told that these are manifold; that they embrace no less than an investigation of the structure of each domesticated animal, the uses of the several parts of the organism, the changes to which these are exposed by diverted action, the means by which this is to be subdued, the history of the agents employed, together with their composition, properties, effects, legitimate doses, &c. Besides these, all of you will have to make yourselves masters of the principles of surgery, and the method of performing operations, as well as with the several collateral branches of science, hereafter to be alluded to, and which have a greater or less bearing on the principal object of your study.

Anatomy is truly said to form the basis of the fabric which has to be reared. Without this foundation to rest upon, the whole superstructure of medical knowledge is in danger of falling to pieces. It is impossible to speak too forcibly of the importance of anatomy, and of the necessity which exists for you to devote a considerable portion of your time to its investigation. It is in the dissecting-room alone where such knowledge can be rightly obtained, and the facilities which are afforded in this respect to the veterinary student contrast strongly with the difficulties which beset the progress of the student of human medicine. Our subjects are comparatively of trifling value, and easily obtained, and can be brought to the table with their organism unchanged by the inroads of disease or by natural death. These privileges are, however, not to be abused. No justification can be found for the wanton or unnecessary taking away of life. Ever should it be remembered that life in whatever form it is met with, whether in lordly man, the highest of earth's created beings, or the tiniest monad that sports in a drop of water as in a boundless ocean, is the gift of God, and as such deserves our reverence and praise, as also our protection. True it is, that in taking the life of an animal we take but animal-life, and that no soul is thereby hurried into the presence of Deity; still, for the reasons before advanced, unnecessary sacrifice must not be made. I am induced to dwell on this, because I have seen great waste in the dissecting-room, and many a subject removed while yet useful for important purposes. Another reason also remains to be stated, namely, that sufficient care is frequently not exercised in the dissections; parts are literally cut up and destroyed instead of being properly separated, the one from the other, for further study, and when inquiry has been instituted into this, the cause assigned has been the readiness with which subjects can be procured. We look for improvement in respect to these things, and hope to find, throughout the present session, that both old and new pupils will vie with each other in the neatness of their dissections, and in the amount of knowledge which is to be obtained from the parts they already possess.

Information, such as can only be acquired in the dissecting-room, will also demand silence and decorum to be strictly maintained, notwithstanding the observance of these cannot be enforced on the same high principle as in the schools of human anatomy. If we cannot say that a reverential awe ought to be inspired by the thought that we are walking among the dead, or in the eloquent language of Bowman remind the student, "that the dead body on which he operates had once been tenanted by the soul of man, that in all probability the Divine Spirit had once deigned his presence there, and, finally, that its scattered elements are destined to be one day reconstructed, and in a changed and purified state of incorruption to resume their mysterious but essential part in the life of an immortal being," surely we can require that the veterinary student shall not disgrace himself by practical jokes and levity of manner when engaged in analogous investigations.

Anatomy, by common consent, is divided into two branches —*general* and *descriptive.* The former reveals the structure and physical nature of the various tissues of each organ of the body, whether it be bone, muscle, nerve, tendon, or by whatever name it is called; while the latter shows the size, form, and position of every part, and the relative connexion each has with the other. Organization is thus made plain to the senses. The whole frame is seen to be fitly and aptly put together, everywhere giving evidence of the wisdom and design of the great Creator, in whom we live, and move, and have our being.

The most profound anatomist, however, as such, would know but little of the uses of the several component parts of the body. The structure of the liver does not reveal to him that it is destined to form bile, any more than that of the kidney does that it has to secrete urine. The science which unfolds these mysteries is physiology, and it therefore constitutes an important element of your studies. Physiology has to do with a *living organism*, and to a great extent it must therefore be learned from the writings of our best authors, conjoined with the expositions of your teachers. It is perhaps the most inviting of all sciences; for, while some of its laws are fixed and certain and easy of comprehension, others allow of the greatest range of the human intellect for their solution. General or minute anatomy, physiology, and organic chemistry are so intimately united and blended together, that the one cannot be thoroughly investigated without the aid of the other.

So much of what we may be permitted to call commonplace physiology, it is right that you should become *early* acquainted with; but you must be careful to avoid the study of the abstruse points of the science until you have made considerable progress in anatomy and general chemistry. For example, all should know at once that it is the office of the stomach to digest the food—of the liver to form the bile—of the heart and vessels to circulate the blood—of the lungs to support the breathing—and indeed be familiar with the ordinary functions of every portion of the frame: but the way in which these offices are performed, the part that life or organic chemistry takes in their production, must be left for future study.

Sufficient has already been said to show to you that chemistry is indispensable as another of the sciences for your investigation. Nothing has done so much for the improvement of the modern veterinary surgeon as his knowledge of chemistry. Without it he was yet ignorant of many of the functions of the body in health—of the changes wrought by disease—of the means to satisfy himself that death arose from natural causes—of the composition, properties, and even doses of the agents he employed; in fine, deprived of this knowledge, he could not be considered either a profound physiologist or a safe and sure pathologist. A study of this kind and importance will of necessity make a great demand on your time; but if this is rightly economized, it need not to interfere with your other duties. The truths of chemistry are so captivating, its phenomena so striking and beautiful, and its results so important, that the danger often is that pupils will be eager to dive into its subtilties before they are proficient in its elements. You require, then, the same caution here as has just been given with reference to your study of physiology.

Connected with chemistry, as collateral branches, are *materia medica* and therapeutics—sciences which treat of the agents and the manner of employing them in the treatment of disease—and which in due course must also have their proper share of attention.

Botany, although not yet taught in this Institution, is no less an essential part of the education of the veterinary surgeon. The views of my colleagues and myself have been so frequently expressed with regard to this subject, and enforced by such a multiplicity of arguments, that it has become almost a work of supererogation to again refer to it. Professor Headland has truly observed that "the importance of this science, as an addition to the curriculum of *general* education, is at present very universally admitted. Even for a man who is altogether uninterested in the pursuit of medicine, it is certainly not a thing to be proud of, that, while well informed in other points, he should be totally unacquainted with the names, and as totally ignorant of the properties of the common herbs that flourish in our fields and hedgerows. For the tourist, the emigrant, the agriculturist, the country gentleman, some knowledge of botany may be said to be almost indispensable; whereas, to the student of medicine an acquaintance with this science is of still more immediate imporrance. It teaches him to distinguish by their outward characters the vegetable products that constitute so large a portion of our *materia medica*; it enables him to select with certainty from among our native plants those which are poisonous, those which are medicinal, and those which are useful as food." The want of instruction on this science within these walls ought not, however, to deter you from its pursuit; for, placed, as most of you are, in the rural districts, during several of the summer months, you can do much to supply this defect. With a book or two on the elements of botany, and a careful selection of plants as they successively put forth their flowers, you will soon master the rudiments of the science. Remember that in every science there is an alphabet to be learned, and to be learned thoroughly before any advance can be made. This once acquired, further reading and research will soon perfect that which was so well begun. There is no kind of study which you could pursue in the intervals between the courses of lectures delivered here, which is more exhilarating and healthful; while, as has been truly said, "the objects themselves are among the most beautiful in creation." Do not fall into the too common error of supposing that your teachers are *alone* responsible for your professional acquirements. You must be fellow-workers with them, or you cannot expect to reap the fruits of the harvest. A knowledge of the *necessity* of a thing on our parts is a totally different matter from a knowledge of the thing itself; and hence, as teachers, we one and all feel our deficiency with respect to the science of botany to be too great to presume to offer instructions thereon. An alteration of the curriculum of study can alone effect this; and such necessarily involves other changes, some of which are not certainly desirable, at least in the present state of our institution.

I pass on to speak of pathology, the science which embraces the nature, causes, and effects of disease, and to which it may be said all the other branches of medicine converge. In studying pathology we note the phenomena that the functions of the body present when diverted from their usual course by the intervention of disturbing causes, and examine the alterations of structure which accompany such deviations from the correct standard. From the ever-varying causes of disease, pathology may be said to be constantly being learned, but never fully acquired; and hence the value of experience, which time alone can give, in deciding on the nature of doubtful or difficult cases. The steps by which you are to begin the ascent to this temple of fame are securely laid, and none other will serve to conduct you thither. The sciences which have been named are indispensable aids for you to become veterinary surgeons. It is true that in studying them you are not to be anatomists, phosiologists, or chemists simply as such; but to be what you desire to be, you must first be all these in degree. "Without a scientific knowledge of the principles and laws which preside over the natural operations of the living body, you cannot be said to understand, even vaguely, the nature of the derangements of disease; and without a scientific insight into morbid conditions it will be impossible to adapt your treatment skilfully to the varieties which they manifest, or to be other than the slaves of empirical rules, blindly applying the same remedies under circumstances wholly different, and constantly at a loss when new phenomena unexpectedly present themselves."* You need scarcely to be told that your success in after-life will mainly depend on the practical results that arise from your skill in the treatment of disease. Reason, as one of the mental faculties, should guide your proceedings; for all these rightly cultivated tend to perfection. It is instinct alone which never changes. Birds build their nests and bees their cells now, as they did when they were created; but reason, at however great disadvantage from the influence of custom and prejudice, is a principle of change, and if you appeal with confidence to it, your appeal must ultimately succeed. Next to the daily watching of cases of disease, noting the progress, change, or alleviation of the symptoms, nothing will tend so much to the advancement of your knowledge of pathology as the making of *post mortem* examinations. This, which is designated pathological anatomy, unveils things which had been shrouded in mystery, and brings to the clear light of vision that which had previously been only obscurely discerned. Pathological anatomy, in reality, holds in relation to disease the same connection as normal anatomy does to the understanding of the structure of the body. As veterinary surgeons, we here stand on vantage ground. Few objections are ever made to our autopsies; nay, they are not unfrequently insisted upon to test the value of the diagnosis; for there are no kind friends to consult, whose grief is poignant at the loss they have sustained, nor are our humane feelings wounded by the surgeon's knife laying bare the internal organs of the body.

The knowledge thus gained becomes indelibly fixed upon the mind; and the more it is reflected upon, in relation to the symptoms, the more valuable it becomes. As a future guide and counsellor, it is often of the utmost worth; for it will guard you in great measure against the temptation of expressing too freely an opinion at first sight of the nature of a disease. *Post mortem* examinations are by some too much neglected, being instituted only in rare and unusual cases. This is an error akin to that of watching such cases only, and disregarding the information which is to be obtained from the more common forms of disease. "Every case indeed, if well observed, will yield instruction—this for its rarity, that for its frequency."

From these remarks it will be inferred that pathology, to some extent, admits of a division into two parts—the one including special or particular affections, the other general or common ones.

Special affections are not, however, to be viewed altogether as rareties. On the contrary, they are frequently the most common, as well as the widest-spread, maladies with which we have to deal. The rapidity of their attack, and the extent of their existence, often excite our liveliest attention, while the fatality that marks their progress causes our deepest anxiety. This is especially the case both with epizootic and enzootic affections—a fact which reminds me of the propriety of saying a few words upon some of the diseases which have prevailed among our domesticated animals during the past year.

The influence of a continuous hot or cold temperature, a moist or dry atmosphere, or a very variable condition of the weather, in the production of prevailing diseases, is a circumstance far too lightly thought of by many practitioners. Not only in some seasons, but likewise at particular periods of the year, certain diseases are so frequently occurring as to call forth remarks even from the least observant. That many of the maladies of domesticated animals are dependent on the locality and soil they inhabit, as well as on the quantity and quality of their provender, all practitioners are ready to admit; but the immediate, as well as the ultimate, influence of the weather, in mitigating or increasing the effects of these local causes, is often too little regarded by them.

For upwards of a year the fall of rain throughout the greater part of England has been remarkably small; so much so, that many agriculturists have experienced the greatest difficulty in procuring a sufficiency of water, both last summer and this, for their cattle, while that which was obtained was often of the worst kind possible for the maintenance of health, being charged with vegetable matters in a state of decay. From the same cause, also, the pasture lands at the latter part of the summer of last year were so scorched, that they yielded a very insufficient supply of herbage. The immediate result of this state of things was a great fall in the condition of cattle and sheep, which ill-adapted them to withstand the privations and chilling blasts of winter; and the *ultimate* result the loss of hundreds of sheep during the winter, although the weather remained dry, and as such, according to ordinary experience, well suited for these animals. *Post mortem* examinations showed an emaciated state of the body, accompanied with local congestions, particularly of the lungs, as the direct cause of death.

Next to sheep, young cattle suffered the most, the major part dying from diarrhœa, running on to dysentery. It is also worthy of note that in numerous cases, where persons by too generous feeding with oilcake, mangel-wurzel, &c., attempted quickly to restore the loss of condition of their young stock, the animals fell a sacrifice to attacks of hæmato-sepsis, commonly called black quarter, or quarter garget, from a gangrenous condition of a considerable part of the body, due to a septic state of the blood.

The late summer also has been remarkable both for its heat and dryness. The *Observer* newspaper of the third week in July, alluding to the subject, says that—

> "For the last forty-six years it has not been so hot in the metropolis as during the last fortnight. All at once we seem to have passed into a tropical climate. For two or three days there has been experienced a temperature equal to that of India. Several persons have been prostrated with sun-stroke, and perished during the week. and among others two poor little children, left in a perambulator by a careless nurse-girl in the sun. To follow the ordinary avocations of life has been a most weary and irksome task; men, women, and children seemed almost to gasp for breath. In the House of Commons, especially in the committee-rooms, which face the river, the temperature was something frightful, as every crevice through which air could be admitted was stopped up, in order to exclude the pestilential odour of the Thames. In one of the courts of law the presiding judge could endure the heat no longer; he dashed his wig from his head, and invited the members of the bar to follow suit. In the country the effect of the high temperature has been most marvellous. The crops, which ten days ago were quite green, are now ready for the sickle; in fact, in many parts harvesting is in full operation. The most serious results of the hot weather, however, are to be found in the greatly increased rate of mortality, especially in the metropolis, during the week ending the 16th instant. The deaths in that week amounted to 1,400; in the three previous weeks they had been respectively 970, 1,024, and 1,226. The average rate of mortality during the past ten years in the corresponding week was 1,100. The comparison, therefore, gives a most unfavourable result, as it shows that the deaths in the present return are higher by 300 than the number which the average rate of mortality for the second week in July should have produced. Diarrhœa has been unusually fatal."

As was to be expected, animals likewise suffered greatly from the extraordinary elevation of temperature, particularly those depastured in exposed situations, where little protection could be afforded by shade. Many cases of sudden death occurred; the *post mortem* examinations showing the vessels of the meninges of the brain turgid with blood, and also the cavities of the heart filled to repletion with soft and dark-coloured coagula. The most serious consequences, however, of the long-continued heat are still being experienced in the loss of lambs. For many weeks these animals have been dying by scores, especially in several of the eastern counties, so as to threaten, in some instances, the loss of the whole flock. Their death is usually preceded by wasting, an ill-conditioned state of the wool, irregular bowels, fastidious appetite, pallid membranes, and husky cough. They thus gradually "pine away," to use an agricultural expression; no ordinary treatment sufficing to arrest the fatal result. On examination, death, in the greater number of instances, is found to depend on structural changes of the pulmonary tissues, and sometimes of the liver. The edges of the lungs, in particular, are consolidated, impervious to air, and often infiltrated with a purulent fluid, seemingly caused by passive congestion, leading to effusion and slow degeneracy of the *liquor sanguinis*, as results of the exhausting influence of the long-continued heat. Besides this cause of death, great numbers of lambs are likewise being lost from the presence of filariæ, hair-like worms, in the *abomasum*—the true digestive stomach. The animals present analogous symptoms to those whose lungs are organically diseased; and as such, the cause being overlooked, we are often told that nothing can be discovered to account for death. I do not now stop to go into further particulars of these cases of worms within the stomach, because in the present state of science we cannot satisfactorily trace their connexion with either a paucity of rain or an elevated temperature. There are, however, two remarkable instances of the destruction of animals depending upon the latter cause, which, notwithstanding they have already appeared in the pages of the *Veterinarian*, I think are of sufficient importance to be repeated in this address. The record of one runs thus—

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* Bowman's Introductory Lecture, 1851.

"DEATH OF SHEEP FROM THE SUCKING OF THEIR WOOL AFTER BEING DRESSED.

"A singular circumstance has just occurred in the parish of Cudham, Kent, on Lusted Farm, in the occupation of Mr. James Francis. Mr. Francis has been in the habit for several years of using a wash to his sheep, containing mercury and soft soap, as a preventive against flies. He has generally had it applied by dipping them; but this year he had them laid on their side, and poured the wash—one pint to a sheep—over them. The flock (about 128) having been thus dressed, were turned into a barren part of a field to drip. About an hour or so afterwards the shepherd noticed some of them looking badly, and in a short space of time they began to die, and by the morning only sixteen remained alive out of the entire number. It is supposed that they had sucked the moisture frem each other's wool, there being no water in the field, and the great heat causing them much thirst."

The other is an equally interesting and instructive a case, as likewise showing that animals when pressed by thirst will take the most deleterious and unpalatable fluids. It is headed

"POISONING OF PIGS BY AN ACCIDENTAL PARTAKING OF SHEEP-DIPPING MIXTURE.

"Within the past mouth (August) we (the Editors) have been consulted in a similar case to the preceding in the accidental poisoning of some valuable pigs, the property of an influential member of the Royal Agricultural Society. It appears that the shepherd emptied some 'sheep-dipping mixture," which he had to spare after dressing the sheep, into the yard where the pigs were kept, and that the animals, driven by extreme thirst consequent on the great heat which prevailed, drank some of the fluid. In this way twenty-two were killed. One of the animals was sent to the College, and examined by Assistant-Professor Varnell, who found that the immediate deleterious effects of the agent were produced on the mucous membrane of the mouth and fauces. These parts were intensely inflamed, and covered over with a thick layer of effused lymph, which likewise extended into the larynx and a short distance down the trachea, causing death by asphyxia. The entire lining membrane of the œsophagus was similarly covered with lymph, down to the cardiac orifice of the stomach, which organ, however, was scarcely diseased. The mixture was composed of arsenic, sulphur, and soft soap in solution."

I must here leave this part of my subject, although numerous other proofs could be adduced of the ill effects produced on animal life by the extreme drought and heat of the weather.

Mention has already been made of the great fatality of lambs, at present, arising from entozoa, of the thread-like variety of worms being located within the abomasum. Our attention was first directed to this interesting pathological fact last year, in consequence of the serious losses which were being sustained by an eminent agriculturist, who prides himself upon the purity of the breed of his sheep, and the care bestowed on their feeding and management. Notwithstanding the best-directed efforts, his lambs were gradually falling away in condition, and ultimately dying as if from starvation. They had gone on well up to the time of their being about three to four months old, when they were observed to cease growing, and to have an unhealthy appearance of the wool. Their appetites, however, remained good, and the evacuations were for the most part healthy; nor were there any other observable indications of disease, beyond the gradual wasting away of the soft tissues of the body, accompanied in some few instances with diarrhœa towards the close of life. Several *post mortem* examinations, undertaken chiefly by himself, failed to throw any light on the affection, and hence our opinion was sought. On inspecting the animals on the farm, examining their provender, and learning the history of their management, I could gather scarcely any further insight into the cause or nature of the malady, and under these circumstances one of the lambs was killed for my examination. The body was greatly emaciated, the flesh pallid, and the vessels nearly bloodless; but there was no organic lesion of any of the viscera of either the thorax or abdomen to account for these phenomena. Attention was then directed to the internal condition of the digestive organs; and on laying open the *abomasum* I was surprised to find its mucous membrane so thickly studded with minute worms, about half-an-inch in length, that hundreds might be said to occupy but a few square inches. Here was at once a satisfactory solution of the pathological problem. These parasites by their number had drained the system of blood, and thus anæmiated and killed the animals. They were so firmly fixed by the insertion of their heads and necks into the membrane that some little force was required for their removal—a circumstance which led to my subsequent examination of them by the microscope. This revealed the singular fact, that a little posterior to their heads the integumental covering was elevated into the form of barbs, with the points directed backwards, thus enabling the creatures to effectually retain their hold of the membrane, despite the peristaltic action of the viscus, and the mechanical attrition of the ingesta against them. A parallel of this adaptation of means to an end is found in the larvæ of the Æstrus Equi, which is well known to attach itself to the lining membrane of the stomach of the horse by its hooklets, and thus remain for months securely anchored, as it were, to the place of its habitation. Another circumstance worthy of passing remark, especially to the junior students, is that by the location of these creatures within the stomach, we have a beautiful proof of the power of life in resisting the solvent action of the gastric juice. I must not, however, on an occasion like the present, dwell on an inviting theme of this kind, but hasten to speak of other diseases which have prevailed during the same period of time.

With reference to the horse—the animal which many regard as the only one worthy of the veterinary surgeon's care, and who, having their way, would thus "crib, cabin, and confine" the education of the student to the standard of by-gone days in the history of our profession—I believe he has been pretty well exempt from any special disease. During the early part of the spring, the so-called influenza prevailed in London and its vicinity, and also in several parts of the country, but it did not assume a severe form, nor extend over any great breadth of our island. The disease partook rather of a bilious character than a pulmonic one, and as such it yielded more readily to remedial measures.

As a general rule we see fewer attacks of epizootic maladies among horses than among cattle and sheep, and this would appear to be the case in other countries as well as in our own. Whether any change by the more immediate application of hygienic principles, in these latter days, for the preservation of the health of the horse, has been wrought in this respect, would be more difficult to decide than may appear at first sight; but be this as it may, many ancient writers dwell particularly on these affections.

To the early poets of Greece and Rome we are especially indebted for accounts of some of them, frequent allusions being made to such maladies in the writings of Homer, who flourished about 900 years before the Christian era. Alluring as it is to follow the flights of a poetic genius in his powerful narrations of such sad events, we must still receive them with some degree of caution, as truth too often is sacrificed to the poet's vivid ideas and figurative imagery.

Virgil and Ovid are among the poets of Rome whose graphic descriptions of these diseases are preserved to us. Did time permit, examples from the writings of each might be given, but I shall content myself by quoting the well-known lines of Virgil, when describing one of these epizootics as it raged among the Alps, probably not less than 2000 years ago.

" Here from the vicious air and sickly skies,
A plague did on the dumb creation rise:
During the autumnal heats the infection grew;
Tame cattle, and the beasts of nature slew.

* * * *

The steer, who to the yoke was made to bow,
(Studious of tillage and the crooked plough)
Falls down and dies; and, dying, spews a flood
Of foamy madness, mixed with clotted blood.

* * * *

Tisiphone, let loose from under ground,
Majestically pale, now treads the round.

* * * *

The rivers and the banks and hills around
With lowings and with dying bleats resound.
At length she strikes an universal blow;
To death at once whole herds of cattle go—
Sheep, oxen, horses, fall; and heaped on high,
The diff'ring species in confusion lie."

Here we must leave this subject, for we cannot at this distant date undertake to decide whether this destruction of *horses*, as described by the Mantuan poet, in common with cattle and sheep, depended or not on the same affection. We know of no such disease in the present day, although the victims to epizootics are both numerous and various. Eczema, which attacks the greatest variety of domesticated animals, and even the gallinaceous tribe of birds, is never met with in the horse; nor is the pleuro-pneumonia of cattle or the variola of sheep capable of being communicated to him.

Mention has just been made of epizootic eczema, which reminds me that this disease has been more rife during the past year than for many previous ones. It has, however, assumed rather the endemic form than otherwise, and hence been confined to localities where secondary causes were in full operation to favour the outbreak. In and around London hundreds of cattle, sheep, and pigs were at one time the subjects of the malady, and to such an extent did it prevail, that for many weeks the animals which were sent from the metropolitan market into the lairs, to await the next market day, were almost certain to be attacked by the disease in the interim. Much solicitude was likewise felt, for fear of its extension among the cattle which were brought together at the annual meeting of the Smithfield Club, in consequence of its appearance among them. Comparatively speaking, however, only a few cases occurred, the escape of many of the animals probably depending upon a prior attack of the malady, and others upon a state of organism insusceptible at that particular period to the affection. Secondary causes are often too little regarded in these outbreaks, arising in part from their great variety. It is when a disease of this kind shows itself in its sporadic form that we can study the secondary causes to advantage. Several such instances have come under my observation. I will mention, however, but two, as having very recently occurred. In the first, a valuable herd of Shorthorn cows were attacked in consequence of being compelled to drink at a stream whose waters were contaminated by the refuse animal matters coming from some kennels. In this case the disease assumed a malignant type, and several of the animals died, but it did not extend to the other cattle on the farm, although they were placed at a very short distance from them, as these had a continuous supply of pure water. In the second instance the outbreak took place among some pigs which were being fed on the blood and other products of a slaughter-house; and as these animals were located in a yard with some oxen, the malady within a few days had extended to them, but did not go beyond the precincts of the premises. These examples will suffice to show you how important a branch of your studies is an investigation of the causes which regulate the spread of affections of this class.

With regard to pleuro-pneumonia, suffice to say that it also has existed in the sporadic form, with but little mitigation, however, either in its severity or fatality. This malady appears to prevail to a greater or less extent in both hemispheres of our globe, and everywhere to be attended with the same destruction to life. Accounts of its ravages from time to time reach us from the distant parts of America, the West India Islands, the Cape, and even India. So far as we yet know, it has not, however, visited Australia; but it is to be remembered that until 1841 the British Islands were likewise free from the disease. Whether it had previously existed here is a matter of doubt; for, as I have elsewhere stated, an account given by a Dr. Barker, in 1745, of a destructive malady which then prevailed among the cattle, agrees in a remarkable manner both in its symptoms and *post mortem* appearances with pleuro-pneumonia. The pathology of this affection shows that, of necessity, it must ever hold its place among the most fatal ones; and hence the deep-rooted anxiety which the agriculturist feels respecting its occurrence in his herd. Hence also the encouragement that is held out for the empiric to practise his frauds upon a too-confiding public.

Before leaving this subject, I would further observe that a knowledge of epizootics is indispensable to your success as a veterinary surgeon, however little you may be enabled to do to arrest their progress, or mitigate their effects. It is to this class of diseases that the principles of hygiene more especially apply, for it is equally your duty to diligently seek out the causes of disease with a view of their removal, as to alleviate suffering wherever it is met with. Humanity also here makes its claims upon you. We do not, I fear, as a profession, sufficiently endeavour to promote the comforts and the well-being of the animals committed to our care. We do not point out how their dwellings might be improved, and their health promoted by a better system of ventilation, and of feeding and management. We are too careless of these things from the force of habit or of custom. As veterinary surgeons, we should recoil at the unnecessary infliction of pain, and loudly condemn any barbarity of practice; but still we pass by things, without note or comment, by which disease and death are hourly promoted. We want improvement here.

Instruction in the science of medicine in this country has been so long united with the inculcation of the principles of humanity, that no voice is necessary to be raised in its behalf. We feel that man holds but a delegated power over the lower animals, which he cannot violate with impunity. We repudiate the necessity of vivisections in the advanced state of science, and we condemn as unnecessary the performance of experiments to determine again that which had been determined fifty times before; for we believe with Dr. Crampton that "it is a painful and humiliating truth, that the human mind, by being familiarized with scenes of cruelty and horror, may be brought at length to extract from them a kind of insane gratification, which, like other perverted passions, extinguishes all the finer and better sympathies of our nature." And further, "that the public exhibition of torturing experiments on animals exercises a corrupting influence on the minds of those who witness them, and ought not to be tolerated." Cultivate, then, this higher principle of your nature; for, you may rest assured, that while it promotes your own happiness, it will at the same time tend to raise you in the estimation of every right-thinking individual, whose good opinion you are wishful to obtain.

Having now glanced at several of the subjects which are contained in the curriculum of your studies, I proceed to make a few observations on *the means which are afforded you for their acquirement.*

The imparting of information by the delivery of lectures has long taken precedence of all other methods of instruction in science. It is the most pleasing and inviting, as also the most ready means of impressing the mind with the truths it has to acquire. Like all other good things, it has, however, its alloy; too much dependence is often placed upon the teacher by the pupils, who, in their turn, will thus become indolent in seeking further knowledge by reading and investigation. While, therefore, it is the province of the teacher, in his inculcation of principles, to seize upon the rallying points of his subject, to separate the valuable from the useless; it is no less the duty of the student to make the matter his own, and by subsequent research to complete his knowledge respecting it. In this way alone can your minds be stored with information, which is hereafter to be applied to your own benefit and to the advantage of those you are looking to for support. Nor must you omit to be regular in your attendance at the lectures. An occasional absentee differs but little from him who designedly neglects to be present. He has lost, perhaps, it may be, the very thing he was solicitous about; so he has missed the practical application of principles he had heard previous expounded.

Another great error with some is that of deciding for themselves what is important and what is not; and thus they studiously avoid, first one thing, and then another, until they find at last they have made shipwreck of their talents and their time. Talent without industry and perseverance is of little worth. It is the diligent pupil who, early and late, is to be found in his place; who plods on day by day; who receives the inculcations of his teachers in a right spirit, and who has determined to gain the honour he has come to seek—that of being a graduated member of his profession—who will be sure to succeed. It is well that such should know that, in the long run—even if they lack the advantages enjoyed by others, if their mental culture has not been equal, nor their worldly means so great—they will outstrip those who, possessing these things, lack industry and application. Let me, then, intreat one and all of you to persevere, "to impose activity upon yourselves as a positive rule and duty, to be punctual and regular in your attendance, and to allow nothing to induce you to give up even a single lecture."

After the observations which were made in a former part of this address, it is almost unnecessary to say that the lectures delivered here by the several professors embrace the anatomy, physiology, and pathology of the horse and other domesticated animals; chemistry, materia medica, and therapeutics; veterinary jurisprudence, and the principles of surgery. The names of the principal of the college, Professor Spooner, and of Professor Morton and Assistant-Professor Varnell, as officers of the institution, with whom I have the honour of being associated, are not only as familiar to you as "household words," but are a sufficient guarantee that your studies will be rightly directed, and full justice done to their respective divisions of veterinary science. It may with truth be said, that they have now spent many years of the better part of their active lives in the service of the profession; and that if they have not reaped any other reward, they have at least this one, that, in proportion to their abilities and powers, so have they continually vied with each other to promote its onward progress. If, then, you possess long-tried and faithful teachers, and it should still be found that you fail to profit thereby, the only inference which can be deduced is that you neglected to give heed to their instructions, or to co-operate with them in furthering your professional education.

This brings me to say a word or two upon the facilities which exist for the acquirement of practical anatomy. I would, however, remark, in the first place, that the most erudite descriptions on the part of your teachers, as well as the most punctual attendance on their demonstrations, will alike fail to make you practical anatomists. This knowledge must be acquired by yourselves, and for yourselves. Early and late must you labour with scalpel in hand and text-book by your side, in disuniting the one from the other of the several component parts of the body, and in studying their mutual relationship and development. Minutiæ of this kind must be mastered, or you can never hope to rise to eminence in your profession. It may be true that you will never have to perform those delicate operations which the human surgeon has, but in the daily routine of practice you will have a far greater necessity for an intimate acquaintance with the details of organization. Scarcely a case of lameness can be brought before you without requiring for its correct diagnosis a knowledge of the several structures of the limb; and in the examination of horses upon purchase, this branch of science is perfectly indispensable. Your teachers have not been unmindful of these things, nor of the assistance which you will require in your dissections. To perfect you, therefore, in this branch of study, and also to stimulate your exertions, prosectors will be selected from among the senior pupils, who, on passing their examinations, will receive certificates of their having filled this office. Besides the daily demonstrations in the theatre, arrangements have likewise been made to fill up the vacancy which had been caused by the retirement of Mr. Corley, by the appointment of Mr. Good as your future instructor in practical anatomy in the dissecting-room. Tis but recently that this gentleman occupied his place among you as a student; and his uniform good conduct, gentlemanly demeanour, and unremitting attention to his studies, at that time, are our assurances that he will faithfully perform the duties which now devolve upon him.

I come now to the means at your disposal for obtaining a knowledge of pathology.

The nature and consequences of the several maladies affecting animals, together with the principles regulating their treatment, medically or surgically, will be inculcated in the lecture-room; but it is in the Infirmary where, in your daily round with your teachers, you must observe the symptoms and watch the progress of each particular affection. The number of patients which are admitted, will afford a fair opportunity of your mastering the details of practice as it occurs in this large metropolis. On the whole, however, the variety will not be so great as is seen in many parts of the country. Your teachers will endeavour to compensate for this, by making clinical observations on the morbid specimens, and the history of cases, which, from time to time, are forwarded from the country, both by veterinary surgeons and the members of the Royal Agricultural Society, as with this society the College has long co-operated for the improvement of the treatment of diseases of cattle and sheep.

By appointment also of clinical clerks, an additional help is afforded you of studying the phenomena of disease. While performing these duties you will be careful to note the progress of the several cases from day to day, and thus discipline your minds for that reflection on cause and effect which must be the guide of your future practice. You should learn also to make your own diagnosis from what you observe, and see how it accords with the opinion of your teachers, and the remedies that are employed. Experience will soon correct the faults which you may have committed, and thus, imperceptibly as it were, you will be laying a solid foundation for your fame as scientific practitioners, to rest securely upon. Now and then an opportunity will likewise be afforded you of seeing the *post mortem* appearances of cases which had been treated in the Infirmary. These must receive your especial notice, with a view to compare the lesions that are disclosed, with several symptoms which existed during life. Let all such investigations be recorded by you for future reference; they possess a value far beyond any you may at first suppose.

The examination of horses for soundness forms a large portion of the practice of the College, and hence its value to you. To it you should give assiduous attention, and note the several causes of unsoundness and the relative importance which is attached to each. Some things, which to you may appear trivial, will be greatly objected by the examiner; while others, on the contrary, which perhaps may seem to you to be serious, will be as lightly thought of by him. Experience alone can give this knowledge; but seeing its results, his experience becomes as it were yours, and is to be used by you for your own advantage.

There is no branch of your profession which will test your acquirements more severely than the examination of horses. Often will you find yourselves in antagonism to those who have passed through the same ordeal, and obtained their professional education from the same source as you have. This is much to be regretted; and the more so, as we see no effectual remedy for the evil. On matters of opinion there will ever be a difference, but on matters of fact there surely ought to be none. Much might be said on a subject like this, but time forbids it being now little more than glanced at.

To proceed. The next thing to which I direct your notice as a means of obtaining knowledge, is the Veterinary Medical Association. At its weekly meetings, papers are read and discussed, morbid specimens exhibited, and the treatment of diseases criticised. As the Society is based on the mutual instruction plan, so, when its debates are rightly conducted, it cannot fail of being everything its founders desired it should be for your improvement. It has been said that " reading makes a full man, writing a correct man, and speaking a ready man;" and as in this Society all these essentials are brought into active exercise, so it must ever hold an important place among the auxiliaries to your studies. You will do well, therefore, to become members of the Society, and by it contribute your portion to the general fund of veterinary knowledge. Connected with the Society is a most valuable library, of both old and modern authors. These works, subject to certain regulations, are circulated among the members, affording them every facility of storing their minds with the general literature of medical science. Mention may here be made of some of the books which you should consult. Books, however, as has been rightly observed by Dr. Gull, are but secondary aids to knowledge. They can be read to advantage only after observation, or as helps to it; to trust to them alone, is to spoil the faculty of observation; for we do violence to our intellectual nature, when we take that on faith which should be admitted only on demonstration. Knowledge so acquired, however full and sound and beautiful it may seem, is but as the child's bubble, and will collapse on the least contact with the realities of practice. Percivall's " Anatomy of the Horse" is the text-book of the dissecting-room. It only treats, however, of descriptive anatomy, and even in some of its details may be found to lack sufficient explicitness for the student of the present day; still, it is to be preferred to any other. For general or structural anatomy " Quain and Sharpey's Elements," holds a deservedly high position, and should be carefully studied by you on the several tissues and composition of the body. Todd and Bowman's "Physiological Anatomy" is a work of the same class, and of the highest order. The books exclusively devoted to physiology are now so numerous and meritorious, that it is indeed difficult to make a selection; but in this institution we have been chiefly in the habit of referring to Carpenter's " Manual," and also to his more extended work on the " Principles of Physiology, General and Comparative;" and likewise to Kirke's and Paget's excellent " Hand-book of Physiology."

On chemistry you will study the profound writings of Brand, Bowman, and Fowne in particular; and on Veterinary Materia Medica and Therapeutics, you have the book of all others, Morton's " Manual of Pharmacy," a new edition of which (the sixth) will shortly appear. His " Toxicological Chart," you will also find an indispensable in the after-practice of your profession. Headland's " Action of Medicines" is likewise especially suited for your study. On Surgery and Pathological Anatomy, you should refer, among others, to the writings of Millar, Cooper, and Liston, as also to Paget's " Surgical Pathology," and Andral's " Pathological Anatomy." The pathological works relating immediately to veterinary science, are so numerous, and of such a diversified character, that time will only allow of my mentioning the names of some of those who have thus done a lasting honour to our profession. Coleman, Percival, Blaine, Youatt, Clark, Turner, Field, and Spencer are of this number. This list might be greatly extended, and doubtless should be, if merit and literary talent, wherever it is found, had to be brought to your especial notice; but with these names we must rest content for the present. I venture one more remark on this part of my subject, even at the risk of being charged with self-laudation, and that is to recommend to your notice the only journal which exists in this country, entirely devoted to the interests of our science, " *The Veterinarian.*" This work, after having held on for thirty-two years, may be rightly said to be the property of the profession, and to be both in usefulness and intelligence just that which the profession likes to make it. Let us hope that as it further grows in years it will increase in vigour, and be all its long-tried friends desire it should be.

Thus, gentlemen, I have attempted to place before you an outline of the facilities afforded by the College for your instruction. These might have been added to, as well as the subjects themselves have been expounded at great length, and with far more precision and force, had the delivery of this address been undertaken by either of my colleagues. Quoting the language of one of them, "I could have wished that this honour had been conferred on either of them instead; for they from 'thoughts that breathe' would have given you 'words that burn,' and thus profitably have engaged your attention during the current hour."

And now a word on the period of time which must be spent in the acquirement of knowledge, before presenting yourselves for examination in accordance with the regulations of the Royal College of Veterinary Surgeons—two sessions, or, as it may be said, nearly two years. This may seem to some a long time, but you will find it little enough for all the work you have to do, even if each session is honestly devoted to its purpose. Many, alas! fearfully shorten the period by their negligences; and then, by their rejection by the Court of Examiners, they have to reap the fruit of their misspent hours. Let such be the case with none of you.

Some among us who look for change and progress in accordance with the spirit of the times in which we live, have desired that the period of study should be extended, or at least that the pupils who have not enjoyed the advantage of being previously placed with a veterinary surgeon should devote a third session to their studies. This suggestion, simple and consistent as it may seem, cannot as yet be adopted, for it forms but an item of a scheme of great changes, the time for which is not yet come, and the desirability of which I must leave to others to determine. The union which exists between this institution and the Royal College of Veterinary Surgeons, and which has never been completely severed, although at times greatly endangered by conflicting interests, does not depend on any alterations in the curriculum of your studies. The desire of all is, that science, instead of being opposed in her progress by the contending elements of discord, may be allowed to pursue her way amidst the alluring paths of peace, as by this alone can her votaries be advantaged.

I proceed to the last part of my subject—*the encouragements which are held out for perseverance.* Here I must be exceedingly brief, as I am reminded that time passeth by on the wings of the wind. It was rightly observed by Professor Spooner, in his inaugural address of last year, that "you have the *prestige* of your name and fame committed to your own hands." As a profession, there are few honours to look forward to, beyond the one of a life well spent in the performance of duty. Nor do great riches await you: still, a competency is the sure reward of labour, and a good standing in society a certain consequence of honour and integrity. As an incorporated profession, some of you perchance may rise to be members of its council, vice-presidents, or even president; for there are no barriers here, save such as are created by the members of the body corporate themselves. The Court of Examiners has also its veterinary section; and surely it is an honour worth seeking—a seat at that board, coupled as it is with the respect and appreciation of some of the most distinguished teachers of the science of medicine. Nor can we, the officers of this institution, even if health and prolonged life be granted us, continue many years. Sooner or later, others must take our places, and devote their time and talents to the higher elevation of the profession, by an improved system of education.

The connexion which happily exists between the Royal Agricultural Society and the College has also, among other advantages, opened the way for the appointment of veterinary surgeons, throughout the country, as sanitary inspectors the meetings of the different local societies. Scarcely an agricultural association of note can be found, that does not recognize the value of our profession in guarding against the transmission of hereditary diseases among domesticated animals, and in preventing the substitution of older for younger animals. The proper performance of these duties is of the first importance to the public at large, as well as to the agricultural community itself. The durability of a society often hinges on the correctness of the opinions given, as well as on the manner in which the entire duties are performed, by its veterinary inspector. Integrity, judgment, and industry are the prerequisites for appointments such as these.

Another inducement to your perseverance in all which befits a professional man, is to be found in the appointments to regiments of yeomanry cavalry. Recent circumstances, unfortunately, have compelled us to place ourselves in a fit state of defence; and hence these corps are likely to be increased in number, throughout the length and breadth of the land. To each of these is attached its veterinary surgeon. The Army—both the Home and Indian division of it—offers probably the greatest of all incentives to your becoming intelligent and well-qualified practitioners, by the encouragement it holds out to those who prove themselves eligible for appointments therein. The honour is due to the late Professor Coleman, of securing for veterinary surgeons the rank of commissioned officers, than which nothing tended more to raise the dignity of our art, and to place the stamp of public approbation on our services. Within the last few weeks, a new era has, however, dawned upon the army veterinary surgeon, which, through him, is reflected upon the whole profession. We hail this with much satisfaction; and we desire to express our public thanks to its chief author, the Principal Veterinary Surgeon, Mr. J. Wilkinson, and to all others who have assisted him in his labours. By Royal warrant, an increase of pay and rank has been conferred on the army veterinary surgeon.

The provisions of this important measure are such, that I feel assured they will excite the liveliest feelings of interest throughout the profession. Much do I desire that time had allowed of my dwelling on a theme so inviting as a Royal honour being so liberally bestowed upon us. Elsewhere, in the pages of "The Veterinarian," you will read our sentiments; and to some of these we have to look to you for a response.

And now, to bring this too long address to a close, lest further words of mine, after the counsel I have given, should fall listless on your ears, I will adopt the soul-stirring language of Bowman, when addressing the students at King's College, and say with him: "Gentlemen,—Think nobly of your profession, and by your conduct make it worthy in your own persons of the standard at which you estimate it. Remember that its end is beneficent, its studies ennobling and elevating, its ministrations an exercise of our best faculties, and in harmony with the whole constitution of our nature. To excel in it is an aim worthy of all your aspirations, of all your energies; but requiring mental and moral discipline—patient and sustained labour. Go forward in this path with diligence: make your difficulties a school, in which the strength of character may be tried and formed, and convert them from adversaries into your best friends. There is no sweeter recollection than the sense of difficulties overcome. Strive rather to shine in yourselves, than to outshine others. Seek less to derive honour from your profession, than to honour your profession by your virtues. Cultivate a love of knowledge for the sake of the benefits it will enable you to dispense, as well as for the gratification of your own higher tastes and capacities; and then, whatever worldly fortune betide, you will win the most valuable of blessings which the occupation of a life can confer—the satisfaction, in the retrospect, of having improved opportunities, of having acted on right principles, of having been the honoured means of benefiting your fellow-creatures, while humbly, yet earnestly, endeavouring, under the Divine blessing, to accomplish the will of your Maker, and to live to His glory.

SUPPLY OF WOOL FROM INDIA.

DEPUTATION FROM THE BRADFORD CHAMBER OF COMMERCE TO THE RIGHT HON. JAMES WILSON.

On Tuesday, October 4, a deputation from the Bradford Chamber of Commerce had an interview, at Manchester, with the Right Hon. James Wilson, the new financial secretary for India. The interview took place at the offices of the Cotton Supply Association; Thomas Bazley, Esq., M.P., with whom Mr. Wilson sojourned in Manchester, being present.

The deputation consisted of Mr. W. E. Forster, Mr. Whitworth, and Mr. Darlington, secretary.

Mr. Forster opened the proceedings by stating that there was already a very large trade in wool with India. In 1830 there was practically no export of wool from India. In 1840 the wool imported thence to this country weighed 2,441,370 lbs. In 1857 the quantity was 19,370,741 lbs., or an increase in eighteen years of 800 per cent. (Hear, hear). From Australia the exports of wool during the same period had increased only 500 per cent. From the whole world the import of wool had increased from 49 million pounds to 127 million pounds, or 250 per cent. In 1840 India supplied only 4 per cent. of the whole, but in 1857 that country supplied 15 per cent. (Hear, hear). Large, however, as the increase had been, they had every reason to believe that it might be very much larger, and also that the quality might be made very much finer and more valuable (Hear, hear). At present the wool received from India was used almost entirely for rough cloths and similar purposes. He did not suppose that Government could immediately issue regulations to control the native growers, but he thought that they might support the advice which they were about to send through the Chamber of Commerce of Bombay to the growers, namely, that they should clip only once a year. If this were backed up by Government, they had reason to hope for beneficial results. The "black mail" formerly levied upon growers had been abolished (Hear, hear). Mr. Forster pointed out upon the map of India the districts from which the wool chiefly came, and remarked that almost all the hilly districts would grow wool. He had that day received a letter from a gentleman named Milligan, a nephew of the late representative of Bradford, and who had just been to India, and he stated that he was perfectly sure that the country in our possession would grow wool, greatly to the increase of the revenue. Wherever the temperature was moderate, wool could be grown. The way in which the supply had so enormously increased gave hope that with better care there would be an almost unlimited supply. The native grower bartered the wool for other articles, and it left his hands at about 0½d. per lb. No doubt if well taken care of, it would be worth double that price, and the native growers would get a far better price if English capital and enterprize were employed. One of Mr. Wilson's objects would no doubt be to seek for new outlets for different products. At present this wool came across the Punjaub. Now Kurrachee would be a good port, and there were railways connected with it. They did not ask Mr. Wilson definitely to do these things, but they were glad that in the present state of the finances of India he was going out (Hear, hear). They entirely responded to Mr. Wilson's sentiments, and while hoping that the expenditure might be considerably diminished, they had also great hopes that by increasing the prosperity of India, and its trade with England, that the revenue of India might be increased. The wool trade of India with England admitted of a great amount of increase, and this was the point that he hoped the right hon. gentleman would bear in mind (applause).

Mr. Whitworth followed with some practical remarks on the capability of India to produce the kind of wool they needed, namely, that having length of staple and of similar kind to English wool. Some of our colonies offered greater facilities for the growth of wool, but not the peculiar kinds they required. Mr. Wilson was, no doubt, aware of the importance of this subject, and also conscious of the striking development there had been in the productiveness of the colonies and dependencies of Great Britain. It was singular that within the last quarter of a century—he quoted from the *Economist* of September 10, 1859—cotton and wool imports had increased 3½ times what they were in 1833. Therefore it might be thought that we ought by this time to have wool in abundance; but the generality of wool produced, especially in England and many European countries, was only adapted for woollens. One of their chief wants was to have the wool grown its full length, or a whole year's growth, fit for combing purposes. At the Cape of Good Hope the growers had been in the habit of cutting the wool twice a year, but at a recent meeting a great number of wool-growers had agreed to clip the sheep only once in nine months. Whilst short wools and low wools were reasonable in price, long wool was of enormous prices. Long wools were worth 20d. a lb., but similar qualities in short wool did not fetch more than 11d. or 12d., the only difference being the length. This was heavily felt by certain branches in the woollen trade. Mr. Whitworth noticed the intimate connection there was between the cotton and worsted trades. The impetus in the growth and use of cotton had improved their trade. Mr. Bazley would be well acquainted with the fact that the main produce of the mills of Bolton found a market in Yorkshire in supplying that for which worsted was formerly used. A better supply of wool would tell favourably upon the cotton trade, and they felt the vast importance of the labours of the Cotton Supply Association, and most heartily desired to second their efforts. In Halifax they were represented by the Secretary for India, and they had made up their minds that they would apply all the pressure they could, with any sort of decency, in this direction (Hear, hear, and a laugh). They believed that Mr. Wilson was earnest for improvements, and that the system of red-tapeism was doomed. India possessed all the requisites for giving them all they wanted, whether in vastly increased supplies of wool or cotton. India possessed a large amount of cheap labour, while the enormous profits on cotton were leading to the prosecution of one of the most wicked traffics known to humanity—the slave trade (Hear, hear). Mr. Whitworth concluded by expressing the general delight at the appointment of Mr. Wilson, with a fervent prayer that his health and strength would be spared to enable him to accomplish the work for which he was eminently fitted (applause)

The Right Hon. **JAMES WILSON**, in reply to the deputation, said that the subject to which they had drawn his attention was one in which he naturally took a very deep interest, because his family had been for many generations connected with the woollen trade, and many of his own relations were still so engaged very largely. This particular development of the woollen trade was one of peculiar interest, inasmuch as it exhibited in a very striking manner what were the capabilities of India. He remembered meeting Mr. Forster at Sir Peter Fairbairn's in 1851, and at the same time he came to Manchester, and saw Mr. Bazley and the late Sir John Potter; and the object of his visit at that time was to call the attention of his friends, there and in Leeds, to a new market which was then opened up by the Government (and he happened at that time to be secretary to the India Board), in the part of the country from whence this supply of wool had come. Mr. Freer, our resident in Scinde, and who was a man of very great energy and attention to his duties, suggested to the home government the propriety of opening the port of Kurrachee, and establishing there an annual fair, for the purpose of accommodating the native dealers, who came with caravans from Cabool and other districts at least once a year, with their produce to exchange for our goods. The Government immediately took steps to carry out his views and recommendations in the quickest way possible, being fully sensible of the benefits that would result (Hear, hear). That was in 1851. They wrote to Mr. Freer and desired that he would send home samples of all the different descriptions of goods, woollen and cotton, that were used in those districts; which he immediately did, and they were forwarded to the manufacturing districts. Statistics showed that about 1830 no wool was imported; but as soon as we became possessed of Scinde a small quantity of wool was imported. About 1840, as Mr. Forster had stated, the imports did not much exceed two million lbs. In 1851 it had reached four millions. As soon as that fair was established at Kurrachee, the impulse given to it had been so striking and rapid that it had increased to near 20 millions lbs. in 1857. He learned from a report recently received from Mr. Dalziel, custom-house collector at Kurrachee, that the trade of that port, which in 1851 was nothing, was last year two millions sterling (Hear, hear). This he (Mr. Wilson) looked upon as one of the most hopeful symptoms and evidences of what might be done by carrying out similar principles in other parts of India. Mr. Forster was quite right in saying that the chief part of the wool imported from India was from the territories west of the Indus, and therefore not from English possessions; and he was quite right when he said that the trade was very much limited in consequence of the "black mail," which was not levied in one place, but by every little horde of highwaymen, as they might almost be called, through whose district the wool passed. Mr. Freer took a step, almost on his own responsibility, of lending to some of the native chiefs across the Indus a few English soldiers to clear the passes; and from that day the way had been opened at much less cost, and the road was much more free (Hear, hear). With regard to an improvement of the quality, the only suggestion he could make of a practical kind would be, that they should send out samples of the longer sorts of wool to the port of Kurrachee, and if they were sent to Mr. Dalziel he would give every possible attention to their requests, by explaining to the merchants, and through them to the growers, the advantage of producing the wool of long staple. There was no doubt that all the hilly districts were capable of growing wool, and did grow it. Not only the hilly districts in India, but also the plains, produced sheep in very large abundance, mutton being the chief animal food consumed. The quality of the wool varied with the climate; when very hot or very cold, the wool turned to hair; a temperate climate was requisite for producing wool suited to their purposes. No doubt upon the high lands the wool grown must be suitable. No doubt with regard to wool, as with every other production, one of the great difficulties hitherto of collecting—not of producing—and rendering available for shipment, had been the want of the means of transport (Hear), and he was afraid this would long remain one of the reasons why the products of this wonderful country were not more bountifully supplied to Europe. He was glad to say that Mr. Freer was appointed as his colleague, a member of the Supreme Council of Calcutta; he would have, therefore, every opportunity of communicating with him on this very interesting and important subject, and of advising with him how best to carry out their views (Hear, hear). This it should be his pleasure and duty to do as soon as he arrived in India. Mr. Freer's practical knowledge of the country and his high business qualifications would have suggested to him the removal of any obstacles that could be removed to the introduction of improvements. The subject should also receive his best attention, and if there were any suggestion which he thought would be of use, he would take care it should be communicated to them (applause).

Mr. **FORSTER** said he was sure that the high opinion entertained of Mr. Wilson by those whom they represented, would be very much increased when they made their report. He well remembered the visit to which Mr. Wilson had alluded, but he was not aware that the fair at Kurrachee was in such thorough operation.

Mr. **WILSON** added a hope that English enterprise, which was never wanting on these occasions, would very soon, at so promising a place, establish houses for direct trade with England and Kurrachee, instead of doing the trade as now through the interposition of the Bombay houses. This would save the double voyage. The packing might be done at Kurrachee, where there was an excellent harbour.

The deputation retired, after expressing their grateful acknowledgments for the kindness and courtesy of the right hon. gentleman.

PROTECTION TO AND PROFITS OF AGRICULTURE IN AUSTRALIA.

TO THE EDITOR OF THE ECONOMIST.

SIR,—It would be interesting, I have no doubt, to many of your readers as to myself, were you to notice an article in *Fraser's* (September) *Magazine*, "On the Effect of the Gold Discoveries on *Australia itself*," or at least notice the subject.

I have a relative intending to emigrate there, or to New Zealand, taking out a few thousand pounds with him; and it strikes me that the arguments of this writer are sound, viz., that the application of capital in agricultural, pastoral, and other pursuits must not be expected to be steadily remunerative as long as the gold-diggings maintain their present position; that, in point of fact, Australia imports a large portion of its corn, butter, and timber from Europe or other countries, where it can be produced at a cheaper rate, because the wages of labour are much lower; and that this state of things cannot alter while the gold-diggers average 10s. a day. The outcry for more emigrants, re-echoed in every colonial newspaper, shows how severely this disadvantage is felt. But neither is this a very enlightened cry, because if emigration were much greater than is likely, or even I may say possible, while other quarters of the globe also offer so many attractions, the profitable gold-diggings would draft off the labourers from the lands and the flocks, and leave the capitalist much in the same position that he was before.

Now, do you agree with this writer in his conclusions? There have been two or three able articles in the *Economist* on the effects of the gold discoveries on the world at large, with regard to the great question of depreciation or non-depreciation of prices, but not one, I believe, on the effects upon Australia itself, and upon capitalists settling there.

I remain, Sir, yours faithfully,

Manchester. H. M.

Our correspondent fears that the agriculture of our gold-producing colonies will be injuriously affected by the high money wages which have been paid there since the discovery of gold, and he does not seem to stand alone in his apprehensions. The most recent intelligence from those colonies affords a singular comment upon them. A cry—not, we are glad to say, a very strong cry—has been raised for a protection to domestic industry, and especially to domestic agriculture. Public meetings have been held both in New South Wales and in Victoria; and we have now lying before us a newspaper published in the latter colony, which is by no means ill-written, and which decidedly repudiates the 'crude system' of free trade. The demand for legislative encouragement is based, as usual, on the ground that agriculture is not, without it, very profitable.

The gold colonies are, in fact, in a very exceptional position. In general, new communities which have at their command a virgin soil raise their own food; and where the soil is reasonably productive they export food for the subsistence of older and more densely-peopled countries. They in that manner purchase comforts and luxuries which they could not otherwise enjoy. But Australia and California are circumstanced differently. It does not pay *them* to produce corn for exportation; they have a most wonderful facility in producing gold, which all the world wants, which they export to older countries, and by means of which they obtain such an abundance of luxuries as no colonies ever before had. It is more profitable to the colony to produce gold than it is to produce corn. The general interest of the world requires that the peculiar facilities of this community should be employed; and even if it were not so, that community will, with the instinct of self-interest, select the pursuits in which they have such facilities in preference to all others. Even, therefore, if the agriculture of Australia and California had not increased, or even if it had diminished since the discovery of gold in them, we should have seen no reason to regret the fact as far as those countries were themselves concerned. They have better means of producing another commodity, and were right in using those means as far as it was possible.

The fact, however, is, that the agriculture of those countries has of late years rapidly progressed. We find from an official document printed by order of the Governor, at Melbourne:—

"Since the year 1854 the progress of agriculture has been much greater than that of population. The increase in 1857 as compared with 1854 was more than 400 per cent., while the increase in the number of inhabitants, according to the census of those years, was 73 per cent. If agriculture continues to progress in this ratio, the country will not merely supply its own wants, but produce a large quantity in excess."

The same return gives the following table:—

	1852.	1853.
Total number of acres cultivated......	57,298	237,729
Acres under wheat	29,623	87,230
" barley	1,327	5,407
" oats	6,426	40,118
" potatoes	2,375	20,693
" other crops	17,547	84,281

In California the progress of agriculture is even more remarkable. In spite of the enormous increase in her population—the growth, in fact, of a numerous, highly-paid, and highly-fed community—she exports food.

The explanation of this remarkable progress is given by another part of the same series of returns. Both Victoria and California are not only rich beyond example in mineral wealth, but their soil likewise is of the greatest natural fertility. Although, therefore, they have an enormous inducement to produce gold, they have a still greater inducement, on the most fertile parts of their beneficent soil, to cultivate corn. The facts are these:—It appears that in the newly-peopled States of America about twelve or thirteen bushels of wheat are considered to be a very fair, and rather more than an average yield for land per acre. How much that of the two gold-producing regions exceeds this, and also how much it exceeds that of one or two other countries which are not barren, is evident from the following table:—

COUNTRIES.	Bushels per Acre.		
	Wheat.	Barley.	Oats.
Victoria, average of the years 1855-6-7	23.1	30.3	29.3
Tasmania, 1850	16.5	24.2	23.7
South Australia, 1857..............	12.0	22.0	25.0
New South Wales, average of 3 years	15.4	16.7	16.7
State of New York	14.0	16.0	26.0
State of California, 1855...........	20.0	31.5	20.2

It seems rather hard that South Australia, which produces no gold, should be under so great a disadvantage likewise as respects agricultural fertility. Such is evidently, however, the case. The gold-producing parts of Australia, and likewise California, are in a position to resist the extreme temptation which we mentioned, to forego all other pursuits for that of gold production. In one at least there is a prospect even more tempting.

This view of the actual facts gives an easy answer both to the protectionist of the colonies and to our correspondent. It would not be surprising if so rapid a progress as that which we have indicated may have for a moment gone further than was desirable, though we do not know that it has done so. The most singular natural advantages may be pressed too far. It may be, that a temporary check to an over-quick progress is the explanation of the alleged depression in Australian agriculture. But this only shows with greater clearness the absurdity of asking legislative protection for the cultivation of such soils with such a market as that of the gold-producers so near to them. If people leave such an occupation as that, there must be extraordinary gains elsewhere. If these natural advantages will not induce people to cultivate the soil, legislative inducements would probably be ineffectual as well as undesirable.

The difficulty suggested by our correspondent is also, by the aid of the facts, to be seen in its true light. It is quite true that the discovery of gold has raised wages in the colony, and has not raised them in Europe. It is quite true that for a long time the value of labour in Australia is likely to be considerably greater than it is in most other countries. This is the certain and necessary consequence of such events as the gold discoveries. They increase the price of commodities, and they augment the cost of home production, and therefore they act as a premium on importation. The able writer in *Fraser* is quite correct in insisting that the gold discoveries, by giving a singular bounty to one pursuit, operated to that extent as a discouragement to other pursuits. But experience proves that the natural advantages of agriculture are so great as to enable it, nevertheless, to maintain for some years a rate of progress that is certainly very remarkable, and is nearly unexampled.

THE AGRICULTURE OF PRUSSIA; OBSTACLES THAT PREVENT ITS PROGRESS.

The system adopted by most of the Governments on the Continent since the era of the French revolution, and as a consequence of that event, is at once anti-progressive in regard to industrial pursuits, and revolutionary in its political tendency. With the latter effect we have no otherwise to do than as it affects the advance of social and industrial improvement. But its chief bearing is upon the land, and that portion of the population connected with it. In speaking, therefore, of the agriculture of Prussia, it is impossible to avoid a reference to those political arrangements which retard or promote, as the case may be, the cultivation of the soil and the increase of its productions.

At the commencement of the present century the Prussian Government found itself involved in the wars of Napoleon, which threatened the very national existence of the state. At that period the feudal system existed in all its rigour in Prussia, the land being chiefly divided into large baronial estates or seignories, belonging to the nobility. The rural population were serfs or slaves, having no political rights, but subject to the uncontrolled sway of the seigneur, who possessed a complete civil jurisdiction within his seignory, and, virtually, the power of life and death over them, the appeal to the sovereign being attended with difficulties so great as to render a resort to it almost impossible. But whilst on the one hand they belonged to the estate, could not leave it without the sanction of their lord, and were, in fact, bought and sold with the property as part and parcel thereof, they, on the other hand, possessed a tacit prescriptive right in the soil to a certain extent, of which the seigneur could not dispossess them. They held a small portion of land, for which they paid a *rent in kind*, and performed a certain amount of labour on the domain and other services. Whilst these were performed the seigneur could not deprive them of their holdings, nor of any property they might have acquired.

Such was the state of things in Prussia, when the condition of active warfare, in which that country became involved with France, rendered it desirable to give to the masses a more direct interest in the soil, to induce them to exert themselves in its defence. The Government, therefore, determined upon the emancipation of the serfs, and a distribution of the land amongst them, so as to give them a personal interest in the defence of the country.

It was in the year 1807 that the series of enactments for this purpose was commenced, by which the old feudal system was abolished, the whole rural population emancipated from serfdom, and the lords of the soil, the landed aristocracy, compelled, on certain conditions, to grant them a share of the land in perpetuity; in some cases on payment of a fixed sum, either in hand or a security given for such payment. But although the act or decree was compulsory on the seigneur, it was optional on the part of the peasant; and, in the first instance, many of them who were under kind and humane masters, to whom they were consequently attached, preferred remaining on the old connection. We believe, however, there are now but few who have not availed themselves of the law to become freeholders. The enactments by which this great change in the policy of the Prussian Government and in the condition of the peasantry was effected were completed in 1811.

By this measure, the rural population of Prussia were nominally elevated in their social position, and were ostensibly introduced to a political existence as occupying *collectively* the local relation to the state of the former possessors of the soil; and they thus became the most important element in the social body. Unwilling, however, to surrender any portion of its own power, whilst it annihilated without scruple that of the ancient nobility, the Government feared to take the next important step, of giving to the people a constitution, although the promise to that effect was solemnly repeated and pledged at the Congress of Vienna, in 1815. Freedom from local oppression was granted, and the means of subsistence by their own industry secured; but political freedom was still withheld, nor had they political influence in any form whatever; no representative legislature, no voice in any of the measures of the Government. In the place of the ancient aristocracy, a new and numerous body of functionaries was created, whose interference in all the arrangements of social life are quite as onerous, and far more annoying and galling, than that of the former master of the peasantry. Every domestic institution, every civil appointment, every movement of the people, was under the servillance and control of the Government, in which was centred the active power over the social, civil, and political affairs of the nation, uncontrolled by, and irresponsible to, any jurisdiction whatever.

But tho Prussian Government did not confine itself to the changes we have described, nor deem the power it had thus acquired over the masses of the people a sufficient safe-guard to the Crown. The kingdom of Prussia is composed of various nations, each of which possesses a nationality of its own, and between which there is little or no sympathy: The war with the First Napoleon had taught the King of Prussia his weakness, and the necessity, if he could not create a common national feeling amongst them, of uniting them in one universal military organization. The law of conscription also, adopted in France by the Republic, and continued by the succeeding governments, by which 80,000 of the male population were annually enrolled in regiments of the line, rendered that country a dangerous neighbour, and suggested the necessity of a somewhat similar measure to prepare the country against whatever contingencies might arise. With these objects in view, the *Landwehr* was instituted, the operation of which, as it has a material and powerful influence over the agriculture, as well as every other branch of industry of that country, we shall now describe.

By this law, every male inhabitant of Prussia, whatever may be his rank, wealth, station, profession, or calling, is compelled, between the ages of twenty and twenty-five years, to serve for three years as a common soldier, in a regiment of the line. This system was established by decrees of the 3rd September, 1814, and the 21st November, 1815; and such is the rigour and impartiality with which it is enforced, that nothing but the most obvious incapacity of body or mind, from natural or accidental causes, can procure exemption. Every conscript is examined by a local board of commissioners for military affairs, whose proceedings are reported to, and narrowly watched by a superior provincial board, and both report upon every claim to exemption to the War department. Such is the construction of these boards, that no favour or partiality can by any possibility be secretly shown without detection; nor can any local interest screen an individual from his turn for entering the army for three years, which is determined by lots, drawn by those who are between the prescribed ages stated above. Each conscript is appointed to a particular branch of the service, and to a certain regiment, regulated by his height, constitution, or previous occupation. Officers from each branch of the service attend the boards at their sittings, to make the selection. In some cases in which so long a service as three years would be destructive, or highly injurious to a person following a particular profession, the period is shortened to one year, upon a certificate of the facts being given, and the party finding his own clothes and accoutrements. Such instances, however, are very rare and exceptional, and cannot be claimed as a right, being wholly at the discretion of the higher authorities.

After the three years have passed, and the conscript has completed his service in the army, he returns home on leave of absence, not absolutely as a civilian, but as supernumerary, liable to join his regiment again in case of a war. On reaching his twenty-sixth year, he is discharged from the standing army, and is then attached to the army of reserve, or that division of it called *erster auf gaboths*, or "first for service." This is considered the real army of the country, being composed entirely of soldiers of three years' training, and between the ages of twenty-six and thirty-two years. One-third of the standing army is discharged every autumn into this division of the army of reserve, and replaced in spring out of the population, by the local and provincial boards of commissioners. The army of reserve is called out for exercise in field manœuvres for fourteen days every year, which, however, is sometimes extended to four weeks. After the age of thirty-two, the conscript is turned over from this first to the second division of army of reserve. In case of war, this division will not take the field, but will do garrison duty, as being composed mostly of men of families, and advanced in life, and also half-invalids who have been found unfit to serve in severe duty. After his forty-ninth year, the conscript is turned over to the *Landsturm* or levy-en-masse, which is only mustered or exercised in its own locality, and will only be called out in case of actual invasion or domestic tumult. The whole land is thus one vast camp, the whole population one vast army; every man in every situation in life, and in every locality, is a drilled soldier, who knows his regiment, his company, his squad, his military place in it; and he appears under arms at his rendezvous for duty with as little delay or confusion, and as complete in all military appointments, as a soldier in any standing army quartered in cantonments.*

It is impossible to conceive of any national institution more directly subversive of industrial habits, or presenting greater obstructions to industrial progress, whether in commerce, manufacture, or agriculture, but particularly the last, than this law of the *Landwehr* in Prussia. Is it doubtful what must be the effect upon the interests of the country, to have the entire rural male population abstracted for three years from their industrial pursuits, just at that age too when labour itself is a pastime, and its instrument a toy in the hands of the workman? What too must necessarily be the effect on the character and habits of the majority of these youths, produced by their being incorporated with a standing army just at that period when the mind is most susceptible of impressions, and at which the life of a soldier, half spent in idleness and dissipation, and the other half in acquiring a taste for military life, is thus imperiously forced upon him for his whole existence? for such, in point of fact, is its real duration. Undoubtedly, although necessity may compel the conscript during the intervals of his military service to work for his bread, the dissipation and desultory habits of the guard-house and the camp will cleave to him through life, renewed as they are by the subsequent military service. And independent of the time abstracted from the years of useful labour, his industrial habits are deteriorated by those acquired in his military career.

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* The above account is extracted from "Laing's Notes of a Traveller in Prussia," &c.

Nor does the mischief stop here, for this transformation of a whole people by a vast military organization into a nation of soldiers inevitably leads to the debasement of the national character. We have already stated that the Prussians possess no nationality in common, the kingdom being composed of various provinces, having different habits, sympathies, and interests, and that the military system adopted is an attempt to amalgamate and fuse them into one nation, by uniting them into one vast military brotherhood. The aggregative effect is undoubted ; but at the same time, the means employed are the worst that could have been devised either for the safety of the crown or the well-being of the people : whilst the system fails in reality in the main object of its design. The Pole still remains a Pole, the Saxon a Saxon, &c. Each of the Prussian states, whether conquered or ceded, retains intact its nationality in spite of the general organization, and steadily refuses the desired fusion into one people.

The emancipation of the Prussian peasantry is therefore only a change of masters, effected by breaking up the ancient landed aristocracy, who were in a manner independent of the crown, and the substitution of a military aristocracy dependent upon, and under the absolute control of the crown ; whilst the serfs have been constituted freeholders of the land formerly held by the aristocracy, on condition of surrendering to the crown their entire civil rights, and consenting to be thenceforth governed, controlled, and overlooked by functionaries created, maintained, and commanded by the crown. Instead of a baronial master, who, whilst standing between the serf and the sovereign, may be supposed to have had an interest in the welfare of his retainers, the latter are now under the constant serveillance of a set of officials, who have no other interest to look after than that of giving satisfaction to the Government which employs them.

So far, therefore, as any real nationalization is concerned, this military organization is a failure. The raw materials, if we may so express it, are amalgamated, but, like a rope of sand, have no social adhesion, no national sympathies in common to unite them. Composed of different, and, in some cases, hostile provinces and peoples, conquered or transferred without their consent, the state which holds them in subjection with the despotic grasp of a conqueror, has neither a claim to, nor a hold upon their gratitude or affections. "It is connected," says Laing, "with the people only by two ties, that of the military army with its officers, and that of the civil army with its functionaries. The material interests of the people, even amongst themselves, are not amalgamated. There are no common interests, common laws, common religion, common voice in the Legislature for their common centre, uniting all."

But it is with the bearing and effect of this military system upon agriculture that we have to do, and we therefore shall now proceed to describe it. In the year 1825, Mr. Jacob was deputed by the British Government to visit the Continent for the purpose of ascertaining the state of agriculture in the corn-exporting countries. The system of the subdivision of the land in Prussia had then been in operation eighteen years, so that a fair judgment might be formed of the effect both upon the character of the people and on the productive powers of the soil. This would undoubtedly have been ascertained, had not the system pursued by the Government, which we have described, neutralized the benefits supposed to be conferred upon the rural population by emancipation from serfdom. This renders it difficult to judge, except by analogy, how far the low and backward state of agriculture in Prussia is due to the system of small proprietaries, and how far to the additional and obstructive causes we have been describing.

At the period of Mr. Jacob's visit there were in Prussia 314,533 estates under fifty acres, and 257,347 of from fifty to two hundred and fifty acres. There were also 668,400 male adult Prussians, some of whom had each a small house of his own ; whilst the remainder of the peasantry were labourers for others, and did not possess a house or any land of their own, but were allowed by their masters a field for the support of one or two cows. Mr. Jacob states that the poorest young man, if he is intelligent, prudent, and self-denying, may purchase a garden or farm for himself.

Mr. Jacob's report does not go into the question of large or small farming, but is very explicit in his account of the condition of the agricultural population in general. With regard to the peasantry, whether those who farm their own property or those who live as labourers for others, they have no counterpart in any class in England. Their dwellings are constructed of boards, or stones put together without cement, and are covered with shingles ; their food is potatoes and rye or buckwheat ; their clothing they manufacture themselves, the linen from flax grown on their own patches of land, and woollens from the produce of their own sheep. An earthern pot that will bear the fire is the most important article of furniture. The honey produced by their bees serves as a substitute for sugar ; chicory, grown on their own land, for coffee. Wood abounds everywhere for fuel, and is burnt in close stoves. Water is the only general beverage, their finances not allowing them either ardent spirits or beer. except on extraordinary occasions.

The Prussia Crown possessed large landed property, which was let out in extensive farms at rents ranging from eightpence to four shillings per acre. Those Crown tenants do not appear to have been in much better circumstances than the small freeholders. Mr. Jacob states that they had run in arrears of rent for ten years ; when the Crown, finding that they were unable to pay the back claims, consented to waive them, on condition that the rent should be paid in future. They agreed to do this, but he further states that they had not been able to fulfil the engagement.

Under such depressing circumstances, the cultivation of the land was of a very rude description. Notwithstanding the system of fallowing every third year, losing thereby an entire harvest in that period, the produce was very small. The following is given as the amount of the cereal crops in Pomerania :—

		Bushels.		Bushels.
Wheat	sown	155,935	produced	996,224
Rye	„	1,254,960	„	4,383 584
Barley	„	619,992	„	2,757,688
Oats	„	1,245,704	„	2,975,880
Total....		3,276,590		11,113,376

This gives a yield of 3-30ths of the seed sown of all kinds of cereals taken together. The value of land at that period in Prussia was very low. Mr. Jacob mentions a farm of 2,800 acres of good sandy loam, chiefly arable, which was sold during the time he was in the country for £5,300, or not quite 40s. per acre. Another farm of 4,200 acres of inferior quality had been mortgaged for £3,000. The mortgagee foreclosed, but upon the property being put up for sale it would not fetch the amount of the mortgage, and the creditor was obliged to take it. This cost him little more than 14s. per acre, and being a wealthy man he was able to expend £2,000 more upon it, and thus probably made it a more profitable concern than the previous owner had it in his power to do.

Such was the state of land in Prussia in 1825; since which time the system of subdivision has gone on rapidly without any change in the social or political condition of the country to relieve the peasant proprietors from the heavy tax upon their time and labour inflicted by the Landwehr.* The following was the distribution of the land in 1852 :—

Farms under	4	acres	936,570;	proportion	50·20
Ditto from	4 to 19	„	565,354	„	28·76
Ditto from	19 to 189	„	382,515	„	19 46
Ditto from	189 to 378	„	14.020	„	0·71
Ditto above	378	„	17,003	„	0 87
		Total....	1,915,462		100·00

The above statement is taken from the official papers of the Board of Trade. It exhibits an increase of more than four-and-a-half to one since Mr. Jacob's time, in the number of farms under fifty acres, and of more than three-and-a-quarter to one of those under two hundred and fifty acres. The land is occupied in the following manner :—

	Acres.
Gardens, vineyards, and orchards....	892,079
Under tillage	30,094,640
Meadows	5,266,449
Permanent pastures...............	5,419,192
Forests	13,614,564
Uncultivated	13,529,614
	68,816,538

The following was the entire produce of the principal crops in the year 1851 :—

Wheat	3,674,663	qrs.
Rye	12,020,250	„
Barley	3,600,000	„
Oats	14,218,125	„
Potatoes................	52,593,750	„
	86,106,788	„

It is evident from this latter table that wheaten bread forms no part of the common food of the population. Mr. Jacob states that from the time he left the Netherlands, in passing through Saxony, Prussia, Poland, Austria, Bavaria, Wurtemberg, &c., until he entered France, he saw neither in the bakers' shops, in the hotels, nor in private houses, a loaf of wheaten bread. The only form in which it could be purchased, was that of small rolls, and they were only seen when foreigners were at table. We believe that since that period it has come more into use amongst the wealthy classes; but still the domestic consumption is very small, the quantity grown as above stated not allowing more than 1¾ bushel per head per annum. The wheat exported from Dantzic and other Prussian ports comes chiefly from the Polish provinces of Prussia and Russia, where the land is very good, and wheat is more extensively cultivated: rye bread is universally eaten by all classes, and with potatoes constitutes the only food of the lower classes, meat being a luxury beyond their means of purchasing. The following was the number of live stock in Prussia in 1849 :—

Horses	1,575,471
Cattle	5,371,644
Sheep....................	16,296,928
Goats....................	584,771
Swine	2,466,316
Wool produced............	35,852,343 lbs.

Between the years 1849 and 1852 there were brought into cultivation 2,768,880 acres of new land, and applied as follows :—

	Acres.
Gardens, vineyards, &c...............	68,228
Tillage..............................	1,195,110
Permanent pasture...................	172,299
Forest planted	1,143,176
Meadow	170,067
	2,748,880

The following is an approximate estimate of the distribution of the land into farms, exclusive of the forests :—

936,570	farms, averaging	2½	acres	..	2,341,425	acres.
565,354	„	10	„	..	5,653,540	„
382,515	„	60	„	..	22,950,900	„
14,020	„	250	„	..	3,505,000	„
17,003	„	500	„	..	8,501,500	„
					42,952,365	„

The above is sufficiently near to give the reader an idea of the different grades of agriculturists, according to the extent of their holdings. The next table is important as exhibiting the proportion of cultivated land appropriated to cereal and green crops. It is proper to state that the cultivation of the Silesian beet root for the manufacture of sugar and for distilling purposes is extensively practised in Prussia. In 1853 the quantity grown and consumed by the sugar factories alone amounted to nearly one million tons, which, reckoning the produce at ten tons per acre, occupies an extent of 100,000 acres. The potatoes may be reckoned at twelve quarters, or three tons per acre, which, according to the produce stated above, will give an area under that root of 4,049,480 acres. The triennial fallow deducts one-third from the cultivable land, leaving 20,063,094 under crop. The entire produce of cereals amounts, in round numbers, to 33,500,000 qrs. If we estimate these at an average yield of 2½ quarters per acre, we have an aggregate of 13,400,000 acres under cereal crops. The following therefore is the proximate disposition of the arable land actually under cultivation:—

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* A striking example of the effect of this law occurred during the late war between the French and Austrians. The apprehensions entertained by the German States, that the contest would be extended to the banks of the Rhine, induced the Prussian Government to *mobilize* the *Landwehr*, or, in other words, to call out the whole of the male population, which was also done by the other States, members of the German Confederation. A friend of the writer's, residing at Bonn, described the effect upon industry as most destructive. "Commerce, manufactures, and agriculture were at a *dead lock*, and not hands enough were left in the rural districts to get in the harvest."

	Acres.
Wheat, barley, rye, and oats........	13,400,000
Potatoes	4,049,480
Silesian beet root..................	100,000
Other crops	2,513,614
	20,063,094

The above estimate of the yield of cereal crops appears small; but when, in addition to the backward state of agriculture, and the general poverty of the farmers, we add that the land of most part of Prussia proper is light and sandy, and that it is subject to severe droughts in the spring and summer months, it will not be considered that we have underrated the produce. The most fertile and the best cultivated parts of the kingdom are the Rhenish provinces. A recent estimate made of the cereal crops in that district raises the average yield to 33 bushels per acre, as follows:—

Wheat	26	bushels per acre.
Rye	26	,,
Barley	35	,,
Oats	48	,,
	4) 135	,,
	33¾	,,

This, however, is an exceptional result, and must not be taken to represent any other part of the kingdom. There is no doubt that the high price of agricultural produce for some years since 1852, and the admission of corn into the United Kingdom at a nominal duty, has given a stimulus to agriculture in Prussia as well as in other maritime States of Europe. The Prussian Government has instituted agricultural societies on the same plan as those in England and France, by which the improvement of the breeds of cattle, sheep, and other animals have been particularly attended to. But the increase of small farms, and the poverty of the peasant proprietors, coupled with ignorance, and an obstinate adherence to traditional husbandry; and overwhelmingly above all, those political institutions which tax so heavily the industry whilst they deteriorate in all important particulars the moral character of the population, present insuperable obstacles to progress in agriculture, as well as every other industrial pursuit.

Nothing can demonstrate the effect of the *landwehr* upon agriculture more forcibly than the fact that the land is chiefly cultivated by the women and girls, and that very few men are to be seen in the fields. The women perform every operation of husbandry, even to digging the land, the most laborious part, whilst the men are engaged either in their military duties, or idling away their time with their comrades of the regiment. The account given by Mr. Jacob of the condition of the peasantry is confirmed by Laing at a more recent period. Without capital or agricultural knowledge, and having no remunerative labour on which to employ their spare time, the peasant proprietors have no means of improving their condition. Everything, in fact, in social life, is stereotyped under the centralized power and authority of the Government, which commences its training from earliest childhood. To the national school every parent is compelled to send his children, under pain of fine or imprisonment if he neglects it. At these schools the paramount duty of submission to the authorities is sedulously inculcated. All instruction is imparted with the most rigid adherence to the system laid down by the law, which embraces everything except the art of thinking for themselves. This task the Government takes off their hands, by thinking for them; and the ideas of the children are directed into the prescribed channel, from which they are not allowed to diverge. Thus primary education itself, which ought to be a preparatory enlargement of the mind, to become in after-life the foundation of that higher and more serious education, the tendencies and results of which depend upon the bias previously received, is converted into a State engine for the purpose of rendering the people the passive instruments of despotism. The effect of thus degrading the human mind by repressing even the ideas, if possible, of that which alone constitutes a man—liberty of thought, speech, and action—is seen amongst every class in the country. "Did it ever happen to a traveller," says Laing, "taking a walk in the neighbourhood of Oxford, Cambridge, Dublin, Edinburgh, Glasgow, Aberdeen, St. Andrews, or any of the Universities of the United States, to be accosted by a stout, able-bodied, well-enough-dressed student, begging cap-in-hand for money from the passengers on the high road? Ten thousand to one, no man alive ever witnessed such debasement of mind amongst the youth of those countries, educated or uneducated. The lad would sell his clothes, work, enlist, starve, drown, hang; but beg he would not. In Germany, within half-a-mile of the University of Bonn, on a Sunday evening, when all the town was walking abroad, I have seen a student in tolerably good clothes, with tobacco-pipe in his mouth, begging, with his hat off, in the public road, running after passengers and carriages, soliciting charity, and looking very sulky when refused; and the young man in full health, and with clothes on his back that would sell for enough to keep him for a week.

This is no uncommon occurrence on the German roads. This want of sensibility to shame or public opinion, or personal moral dignity, is a defect of character produced entirely by a system of Governmental interference in all education and all human actions. It is an example of its moral working on society."

WHEAT GROWING IN CANADA.

It has long been a generally received opinion, that by far the largest portion of Upper Canada is, from soil and climate, peculiarly adapted to the production of wheat, particularly the winter varieties. The Genesee country in the neighbouring State of New York has, till recently, been highly distinguished for the abundance and superior quality of its wheat; and we have in our own western peninsula a wide tract of land, extending to the shores of Lake Huron, comprising similar soils, and resting upon the extension of the same geological formations as prevail in western New York. In the centre and west of that State, wheat culture of late years has been gradually contracted; and in some formerly favoured districts, which used to produce thirty bushels and upwards per acre, this crop has been almost entirely abandoned. Judging from results of the last few seasons, we are in a fair way of following the example. The evil has been gradually, and therefore to some, perhaps, almost unobservedly coming upon us, till of late the crop has been reduced in amount from thirty to forty per cent. below the ordinary average of former years. The yield of last season, as shown some months ago, in the able report on the subject by the painstaking and efficient Secretary of the Bureau of Agriculture and Statistics, was extremely deficient; and this circumstance, coming in the wake of a commercial panic, almost unparalleled for its sudden and widespread desolation, is sufficient to account for our present depressed and embarrassed condition.

Without attempting, at present, an analysis of this complex and difficult subject, which has already engaged the serious attention of many of the best statesmen, agriculturists, and men of science on this continent, we may observe that the two chief proximate causes of the failure in wheat have been the midge and rust. These evils have not taken us by surprise, but have been coming on by degrees, in some seasons more marked than in others, yet, upon the whole, progressively increasing in the extent and intensity of their effects. In the absence of any reliable specific, which the most rigid investigators have hitherto been unable to discover, we may be permitted to offer a few plain and practical suggestions in the hope rather of mitigating than of effecting an immediate removal of the evil, the latter being, we fear, at present far beyond the reach of human agency.

And *first*, when we properly consider the extremely imperfect manner in which land is generally prepared for wheat, and the short intervals allowed between the same kind of crops, a certain deterioration both in quantity and quality is a result that might naturally be expected. We have been persevering in the practice of extracting, by incessant grain crops of a near affinity, those various constituents, without a certain proportionate amount of which no soil can be fertile, or profitably cultivated. As rich, virgin soils are commonly found to yield a succession of bountiful crops under a rude and imperfect culture, farmers unwisely and, perhaps, unconsciously, have been induced to persist in the system till they discovered, to their cost, that their land refused its wonted returns. Shallow and imperfect ploughing, with an occasional scratching of the surface and covering the seed by the harrow, in the rudest manner, have too generally been considered sufficient for the mechanical preparation of the seed bed. And in addition to all this, land is too commonly kept in grain crop, without often any kind of manure, till it refuses to yield a profitable return.

Secondly—Land intended for wheat should not only be naturally adapted to the plant, and receive a deep and thorough cultivation, when necessary a proper manuring, but it must also be sound and dry. This latter condition is the one most essential, in the absence of which manures and the most perfect cultivation will be, to a great extent, thrown away. In wet lands, however rich they may be in all the elements of fertility, draining is an essential preliminary to the profitable raising of grain, especially wheat. If this simple condition were obtained, we should hear comparatively little complaint of rust, winter-killing, &c. A wet soil is always cold and late, the opposite of which, viz., warm and early, are of the greatest consequence in wheat culture.

Thirdly—The judicious selection of such varieties of wheat as are suited to particular soils and climate, with an occasional change of seed and strict attention to its purity and uniformity of ripening, are matters which demand special attention. As a general rule, early sowing, leaving the precise time to be determined by the character of the season, the mechanical and chemical condition of the soil, and local circumstances, is a consideration of by no means secondary importance. If the land be very light and porous, the application of a heavy roller would be beneficial; and sowing with the drill, when practicable, is always to be preferred. The seed is in this way more regularly deposited and evenly covered, thereby securing a greater uniformity in germination, growth, and ripening, and rendering the young plant far more secure against the effects or, as it is termed, "heaving out," by the alternations of freezing and thawing in early spring.

We would by no means insinuate that these few, but, as they appear to us, most important precautions, would in all situations, and in all seasons, render our wheat crops invulnerable and certain, especially against that now too common and most destructive pest, the midge. But we only utter the words of truth and soberness, as the most careful observation and enlightened experience testify, when we say that natural unsuitability of soil and climate, both of which may frequently be modified by art, want of drainage, sowing wheat too rapidly in succession, or otherwise over-cropping, too late sowing, with imperfect cultivation, and impure, or inferior dirty seed, are the chief and often the only causes of producing a sickly wheat plant (and indeed of whatever other crop that may be cultivated), thereby rendering it peculiarly fitted to be afflicted by the midge, or any other species of blight in the numerous catalogue of disasters which afflict our grain crops.

If the ravages of insects, rust, &c., should unfortunately prove too powerful against the spirit of these and similar suggestions when faithfully applied, which we certainly do not believe would be generally the case, no other alternative seems to reman but the total abandonment of wheat growing for, at least, a few years. This extreme expedient, to which farmers will always most reluctantly resort, was actually carried out some years since in the Lower Province, in the Eastern States, and more recently in some seetions of the adjoining state of New York, and the ultimate results have unquestionably been beneficial. We are in a much better position now to forego, if we should really come to that, the raising of wheat, than we should have been only a few years since, when that article was almost the only one for which the farmer could readily obtain cash. It is not so now. Notwithstanding the serious loss and inconvenience which Canada would experience by being deprived of her usual wheat crop, for which hitherto our soil and climate have proved so highly favourable, still we must not despond, as the growing of wheat does not comprehend the whole of our agriculture. Spring grains, and especially the breeding, rearing, and fattening of improved breeds of live stock, could be beneficially made to occupy a more prominent and profitable position than has hitherto been the case, and in the course of a few years the soil would be refreshed for the growth of wheat, under new and more favourable circumstances.

But to this extreme alternative we hope and believe that there is no necessity to go. A vigorous and systematic effort to avert the present threatening destruction of our hitherto staple crop, must be unitedly and immediately made. The evil is already in our midst, and is seriously impairing both the agricultural and commercial well being of the country. We earnestly entreat our farmers to confine their wheat culture to naturally suitable soils, and to increase that suitability by all the appliances of improved systems of husbandry they can command. Of wheat, and perhaps some other kinds of grain, for a while, at least, cultivate less and cultivate better. Land exhausted by too frequently recurring grain crops, when properly laid down to pasture, will become gradually enriched and restored by the grazing of cattle and sheep, which can now be made a profitable branch of husbandry. Hemp and flax, and probably some other crops not yet tried, might be advantageously introduced. We earnestly invite communications from such of our readers, in different parts of the Province, as may have any information or suggestions to offer on this very important and engrossing subject. There never was a time in the history of our yet but incipient agriculture, when careful thought and observation, united with energetic and combined action, were more urgently required than at the present juncture.—**Canadian Agriculturist.**

THE STEAM CULTIVATOR AT CROWNEAST.

Recently we walked over to Crowneast, the estate of A. H. Rhoyds, Esq., to witness the action of a new steam cultivator, and the apparatus for giving it motion. We found the instrument in operation in a large field at the rear of the Sand-pits Inn, situated about two miles from this city, on the Bromyard-road. The cultivator was travelling at the rate of about three miles and a half per hour across the field, and the machinery appeared to be doing its work easily, without strain or extraordinary effort. The field was one of thirty-six acres, divided into two nearly equal parts by iron ox-hurdles. The soil was apparently a strong loam, and mixed with more gravel than is usually seen in land of this description. It appeared to be shallow and of middling quality. The field had been recently thoroughly drained, and the soil was tolerably dry and friable. It had been scarified some time back, but had settled down pretty solidly, and wheels passing over it made little impression upon it. The apparatus consisted of—

1. A steam engine.
2. A cultivator.
3. A windlass.
4. Two travelling anchors or crabs.
5. Two fixed anchors.
6. A mile of wire rope.
7. Friction pulleys to carry the rope.
8. A water cart.
9. A coal cart.

The engine is one of ten-horse power, and, at the first glance, resembles one of the portable engines which travel from farm to farm with thrashing machines. A nearer inspection, however, shows that it is highly superior to most of those engines in construction and finish, and possesses some peculiarity of arrangement in its component details. Like all engines of its class, it is of high pressure, and ordinarily works at an average of about 50lbs. on the inch, though the boiler is calculated to withstand many times that force. The cylinder is placed horizontally on one side of the engine, and the driving-wheel (which is also the fly-wheel) on the other, but at different ends of the engine. The shaft carrying this wheel passes through the smoke-box at the end of the engine, and reappears on the opposite side, as a crank. The crank and the cylinder are therefore both on the same side, but at different ends of the engine. The piston-rod is fitted with the usual guides, and the distance between the cross-head of the rod and the crank being very considerable, the connecting rod is long, and this is very favourable to easy action on the crank, and to the endurance of the slide and brasses. The cylinder has a ten-inch bore, and the piston an eighteen-inch stroke. The slide valves lie on the top of the cylinder, and are worked in the ordinary manner by an eccentric on the crank shaft. The pump for supplying the boiler has its ram connected with the cross-head or the piston, and the ram in consequence makes an equal stroke in length with that of the piston. Advantage is taken of the length of the stroke to lessen the thickness of the ram, in order to reduce the friction. The governor communicates with an equilibrium valve for regulating the supply of steam; and as this sort of valve requires but little force to work it, the governor has unfailing control over it, and the amount of force required for the work is measured out in the most delicate and regular manner. If the cultivator meets with obstacles which retard its progress, the effect is at once communicated to the engine, and the equilibrium valve allows more steam to pass into the cylinder. If but little resistance is made to the progress of the cultivator, the steam is instantly partially cut off by the valve, and the power of the engine for the moment lessened. The equilibrium valve is no new invention, but is not usually, we believe, put upon portable engines. A lubricatory apparatus lies above the stuffing-box of the cylinder, and measures off a minute quantity of oil at each stroke of the piston to lubricate the piston and keep its friction at a minimum. The boiler is remarkably strong in construction, and has five seven-inch Birmingham tubes, which are riveted to the ends by means of angle-iron. It has also a man-hole large enough to admit of access to the interior, for the purpose of cleaning it or doing repairs. This is unusual in these tubular boilers, but is a useful arrangement. The boiler is enclosed in a neat sheet-iron case, the space between the boiler and casing being packed with felt, to prevent the radiation of heat. The crank shaft of the engine lies across the smoke-box, as we have before stated, but it is cased in from the action of the heated air. Below it is placed an "extractor," a copper vessel communicating with the boiler, and receiving the cold water from without, intended to supply the boiler. The exhausted steam, after leaving the cylinder, is conducted in a thin walled tube through the heart of this reservoir; and the heated air, after it has passed the tubes, impinges upon the outside of the reservoir, so that the water, before reaching the boiler, has arrived at the boiling point, and as much of the heat as can possibly be extracted from the steam and smoke is thus usefully economised. The engine is kept steady by iron shoes, which are fitted to the wheels, and keep them from sinking into the ground whilst the machinery is in motion. The general appearance of the engine is good, and, through the comparatively low situation of the working parts and the disposition of the weight, it is very steady when in operation. The cross-head and slides of the piston are cased in from the dust, but, like every other part of the machine, are easy of access. A labourer may in a few days learn to manage it. The finish is much better than that of agricultural engines made for cheapness, and appears to be quite equal to that of a railway locomotive. It weighs about five tons. Its consumption of fuel is about the same as in any good engine with a similar amount of boiler space exposed to the fire. Of course this engine is not a necessary portion of the apparatus. Any other engine of equal power can be used.

We next come to the windlass, which is placed at such a convenient distance from the engine as to be put in action by means of a strap. The windlass resembles a low, broad, strong waggon on four wheels, one of which is kept steady by iron shoes. It contains two iron drums, three feet six in diameter, which carry wire ropes. In front of these drums an iron shaft lies across the waggon, and this shaft is set in motion by means of a large driving wheel at its extremity, impelled by the strap from the engine. The shaft carries gearing, which can set either drum in motion at the pleasure of the man in charge of the machine. Whilst one drum is winding up a wire rope, the other is paying out a wire rope; and when a contrary action of the cultivator is required, the machinery is reversed, and the drum which gave out rope begins to rewind it, and the other, which was winding on, gives rope off. The coupling-box usually employed for reversing the action of a machine is here discarded, simply because it is rather too effective and uncompromising in its action. When the coupler has once laid hold of the pinion which it is to turn, it never yields its hold till shifted by the attendant. No impediment to the working of the machinery can shake it off. This quality is useful while the work goes regularly on, without meeting with obstacles calculated to bring the machinery to a stand; but something else is needed where a cultivator or a plough may meet with a stone or a stump, and be brought to a dead stop. In case such an accident occurred, the result would be the disappearance of the teeth of a wheel, the breaking of a shaft, or the upsetting of one of the machines, if no provision were made for allowing the engine to work on when the rest of the apparatus is brought to a sudden stop. Mr. Royds uses a "friction-box" for conveying the motion from the shaft to the drums. This operates by the friction and pressure of one disk upon another, instead of teeth, the pressure being regulated to a nicety by a lever and screw. The turning of one disk necessitates the turning of that against which it presses; but if the cultivator meets with a sudden obstruction, the drum instantly ceases its action, the pressure on the friction-disks being not sufficient to keep up the winding when any very large strain occurs; and the engine, meanwhile, keeps on its accustomed rate till stopped by the driver. When either drum is giving out its rope, the speed is regulated by a break and a weighted lever.

Before describing the remainder of the apparatus it will be necessary to speak of the mode in which the process of disturbing the soil by the cultivator is carried on. We will take for illustration a small field rectangular in figure. The engine would be placed on a headland near one corner, say on the north side, with the windlass-waggon in line with it on the headland. Lying flat on the ground near the windlass is a large pulley, and there is a pulley in each of the other corners of the field. The wire rope would pass from the windlass round the pulley near it and then down the east side of the land to the opposite corner, then would be turned round a pulley and pass along the south side to the next corner, where it would be taken round the third pulley and fixed to the cultivator on the west. Then a rope would be brought from the windlass along the north side of the field till it reached the pulley at the corner, round which it would pass and be conveyed down the west side of the enclosure to the cultivator, to which it is attached at the opposite end to that on which the first cord was fastened. It will be seen that if the windlass pulls the second rope the cultivator travels up the west side from south to north, and if the other rope is drawn, the cultivator goes back from north to south. The pulleys nearest the cultivator are moveable, so that when the instrument has travelled one length of the field nearest the hedge, the pulleys are shifted a little further east, so that the cultivator encounters fresh ground each time, working from north to south, but gradually shifting till it comes to the eastern fence, and all the field has then been stirred except the headlands.

The portable pulleys are fitted to frames constructed like little waggons on four low wheels, each of which has a sharp, deep, and curiously constructed flange to take firm hold of the earth. Each waggon is also filled with machinery, which, put in motion by the action of the unwinding rope on the pulley, advances the frame and pulley to any fixed distance along the headlands in order to bring them opposite to the new line of ground to be operated upon by the cultivator.

The "rope porters" are small pulleys mounted on small wheels, and are planted along the land to keep the rope from dragging along the soil. When the cultivator approaches one of them, a boy pulls it out of the way, and returns it when the implement has passed.

The rope is made of fine steel wires stranded together, and is about six-eighths of an inch in diameter. A mile of it weighs about one ton. It is exceedingly strong and flexible.

The cultivator contains ten strong tines, five of which work when the instrument goes in one direction, and five when it goes in the opposite direction. As in other cultivators, the tines are capable of adjustment at any required depth. It is four feet six inches from one outer tine to the other, and would of course cultivate a breadth of rather more than five feet at one time. The tines not in use require no lifting, but simply slide backwards on the surface of the soil. There is a seat at each end of the machine for the man in charge of the machine, which is guided by a small steerage wheel at each end with great nicety. A railway signal on the cultivator indicates to the distant engineman how to manage his engine.

The weight of the engine, machinery, ropes, and pulleys is about 15 tons.

Under ordinary circumstances the apparatus requires about two hours to fix and bring into operation. Under favourable circumstances the cultivator will turn up seven or eight acres in a day of ten hours, doing the work twice over. On Saturday last the machine scarified, twice over, a space of 300 yards by 14 yards in one hour. This is something less than an acre. In the trials on Saturday and on Monday the machine broke about two feet six inches of new ground each journey along the land, and at the same time passed over about two feet six inches of land which it had just scarified. By this means the land was disturbed twice before the implement left it. The work appeared to be nicely done; the weeds and grass lay on the surface, and the soil was finely broken up. The tines disturb the earth to a depth of about ten inches. The field being large, arrangements had been made for cultivating about a half of it before the engine would require moving.

Besides the usual attendant on the engine, a man is required at the windlass, a boy at each of the two travelling anchors, and a youth or two to shift the "rope porters" out of the way of the cultivator as it moves up and down the land.

The apparatus is from the workshops of Messrs. Barnish and Ratcliffe, of Rochdale, who are locally well known for the excellence of their machinery. It is only of late that they have turned their attention to the manufacture of steam engines and machinery of this character, but the excellent workmanship displayed in Mr. Royds's apparatus shows that the firm is capable of turning out work of a fine quality. The operations at Crowneast are under the superintendence of Mr. Barnish, whose ready intelligence and practical skill qualify him strongly for carrying out the ideas of an inventor. Mr. Royds appears to be determined to spare neither expense nor trouble in bringing the apparatus to perfection, and he could not be seconded by a man more ready to catch a suggestion and more skilful to embody an idea in iron and wood than Mr. Barnish.

We are invited by Mr. Pitt, the active and intelligent bailiff at Crowneast, to look over Mr. Royd's farm, and gladly accepted the invitation. We passed by the lodge, and entered the pleasant drive leading to the mansion. We were told that great alterations and additions had been made to the buildings during the three years which have elapsed since the estate was purchased from W. S. P. Hughes, Esq., by Mr. Royds. The building is irregular in style, and might be called "the house of many gables." It appears to be roomy and comfortable, and every way fitted up for a rural retreat from the cares of business. The grounds about are very neatly kept. We could not help remarking the large employment of painted iron hurdles in place of hedges, both here and in various parts of the farm. These, though costly, are lasting, take up no room on the land, harbour no destrustive vermin, and neither obstruct the sun nor the air.

The farm buildings are placed at some little distance from the mansion. After being hospitably entertained by Mr. and Mrs. Pitt, at their house, we set out on our journey round the farm premises. First we looked at Mr. Pitt's pet fox, which is chained in his back-yard. This animal is a handsome male, with light coloured fur. His kennel is like that of a dog, but larger, and he delights to be on the top of it. "Is he tame enough to be handled?" we asked. "No," said Mr. Pitt, "he would bite me if I touched him. He was formerly on very good terms with Lassie, here, (a handsome sheep dog) but they quarrelled one night and fought. The fox got the worst of it, and now keeps out of her way. He was taken as a cub, but was allowed to run about too long to be tame." He drove the fox down from his elevated position with a paddle, and the wily animal hastily disappeared into his kennel. We had scarcely left the yard before he had returned to his elevated post.

The extensive rick-yard was completely filled with ricks, beautifully shaped and neatly thatched. The yard was gravelled and dry, and not a stray straw was to be seen about it. In one building we saw a stationary high-pressure steam-engine, of about four-horse power, which is incessantly going, during working hours, all the year round. This engine, with an eight-horse boiler, grinds corn for the horses, cattle, and pigs, pulps turnips and swedes, cuts chaff, churns the cream, pumps the water for the establishment, throws liquid-manure to the top of a neighbouring hill, drives a cider mill, and performs nearly all the heavy drudgery of the homestead. By the vapour from the boiler roots and corn are boiled and hay steamed in iron vessels, everything being conveniently arranged for forwarding the work. The dairy is a cool place at the corner of the rick-yard, with a floor sunk a couple of feet below the surface of the neighbouring land. The building looks like a barn on the exterior, but it is pretty well lighted from the roof. The interior is divided into two portions, in the first of which is the churn, with the machinery to connect it with the steam-engine; then there are cheese-presses and the usual implements of the dairy. The second compartment, which is parted from the first by glass, contains tables on which were set the dishes containing the milk. Here were no Dutch or white tiles on the walls, no encaustic patterns on the floor, nor any attempt at ornament. The place was, however, scrupulously neat and clean, and deliciously cool and fresh. The cream was mantling on the surface of the milk in the earthenware dishes, and all was neatness and order. There is a long cow-house constructed out of a stable, capable of accommodating many animals, with broad passages behind and in front of the stalls to allow of ready feeding and cleaning. The place is pleasantly ventilated, and is lighted by glass in the roof. The stable (constructed out of a large barn) is also admirably adapted for its purpose, and fitted with everything necessary for use, and little for show. We were also shown loose boxes for weaned colts, &c., the granary, the cider mill, and cellar, the smithy, the carpenter's shed, the stables for the carriage horses and nags, and the harness-room, all of which were kept in most excellent order.

Amongst other improvements on the estate are new houses of pretty construction and comfortable accommodation for the bailiff, the gardener, and the labourers. The rents charged are very moderate. In the rear of the mansion, with an approach through the grounds, Miss Royds, the only daughter of Mr. Royds, has established a school for the children on the estate, both boys and girls. The school-mistress is the daughter of the gardener, who is frequently assisted by Miss

Royds in the duties of the school. The education is of a useful character. About a dozen healthy and clean-looking youngsters of both sexes were under instruction at the time of our visit. These, however, were only part of the scholars. We noticed that a harmonium was located in the school. The children are educated gratuitously.

The estate consists of about five hundred acres, a portion of which is kept in grass. The milch cows, about twenty in number, are all shorthorns of pure breed; and we noticed a couple of shorthorn bulls, of fine character, at the cow-house. But we noticed that some Hereford cattle, of very pure blood, were also kept. On the face of a hill not far from the homestead, Mr. Pitt pointed out the excellent effect produced by liquid-manure on the herbage. The spot at one time was almost barren, but the liquid-manure, conveyed to it by a subterranean pipe, had covered it with rich grass. We also noticed in one of the pastures a flock of about a hundred Shropshire downs of remarkably even quality.

Attention to time being one of the elements of success in farming as well as in commercial and manufacturing operations, Mr. Royds has had an expensive turret-clock put above the stabling. The bell on which it strikes is about as large as the treble bell in a respectable church-tower.

Through the steam-engine performing so much of the work at the homestead, fewer people are seen about the place than is usual where the farm is of large dimensions, yet more labourers are regularly employed upon the estate than ever were kept upon it before, and their condition is no doubt vastly improved. We may here state that amongst other contrivances for their welfare, Mr. Royds has established a clothing-club, to which the labourers and their wives contribute sixpence per week each. At the end of the year this is increased by one-half out of Mr. Royd's own pocket.

The reaping-machine was employed throughout the harvest at Crowneast. All the wheat, beans, and barley were cut by it. Mr. Pitt's report of the machine, which is one of Burgess and Key's, was that it performed its work very satisfactorily, even under the unfavourable circumstances of the late season. Where the corn stood tolerably erect the implement left a beautiful stubble; where the crop had been lodged the cutting was passably done, but the stubble did not look well. In respect to the economy of the machine, the cost of cutting was decidedly under what it would have been if done by hand, but great advantage was derived from the facility which it gave for harvesting the crops in doubtful weather.

Notwithstanding the evidences which abound at Crowneast of farming on a high scale, we believe that the attention of the proprietor is far from being confined wholly to agricultural pursuits. Mr. Royds is better known in Lancashire as a banker and extensive colliery owner than as a farmer, but it is probable that the same energy, intelligence, and perseverance which he has displayed in Worcestershire would ensure success in any occupation or in any place.—Worcester Chronicle.

BLOFIELD AND WALSHAM AGRICULTURAL SOCIETY.

This Society celebrated its anniversary on Friday, Oct. 14, at Blofield. The day was delightfully fine, and the autumnal tint which the country has assumed seemed to enhance, if possible, the beauty of this attractive part of Norfolk. The land in the neighbourhood of Blofield is exceedingly good, and, in some cases, it is understood that farms have risen to £3 per acre—a pretty significant test of their value. The show of stock took place in a field at the back of the Globe Inn; but the display, considering the extent and resources of the district, was far from what it might have been, being, in fact, meagre. The horse stock shown, however, were very fair, the colts particularly so; and there were also some nice heifers on the ground, and a few fine Highland cattle. The exhibition of sheep and pigs was quite insignificant as to quantity, and called for no particular remarks. The judges, Messrs. Burton, Garrett, and Kidman, declined, in several classes, to make any award of prizes, on the ground of insufficient merit or inadequate entries. The farmers of the neighbourhood appear, in fact, disinclined to go to the expense of sending stock for exhibition, when they know that the magnates of the locality intend also to be exhibitors; and this state of things obtains in many other agricultural societies; indeed, it is a serious obstacle to their thoroughly efficient working. The farmer feels that in nine cases out of ten he has no chance against the unlimited resources of the large proprietors, and consequently he declines to stand forward only to be vanquished. No doubt a great exceptional excellence is attained in breeding, under the present system, and much advantage indirectly accrues in consequence to all classes; but the ordinary farmer prefers to stand aloof from what he feels would be to him a vain and profitless competition. This was the case at Blofield, on Friday; but the judges had, of course, to determine "on things as they found them;" and their awards were made as follows: For the best fat steer or heifer, £2, Mr. T. G. Tuck; for the best steer or heifer, £2, Mr. T. W. Gilbert; for the best steer or heifer for grazing, under three years old, £2, Mr. T. G. Tuck; second prize in this class not awarded. Prize of £2 for the best stock bull, not awarded; for the second best ditto, 10s., Mr. Rose. Prizes offered for the best agricultural stallion, not awarded. Prize for the best tup of any breed, not awarded. For the best pen of five shearling sheep of any breed, a prize of £1 10s., and second prize of 10s., Mr. Jary. For the best agricultural mare, first prize £2, second prize of 10s., Mr. H. N. Burroughes. For the best cow, £2, Mr. J. Kerrison; second, 10s., Mr. Rose. For the best in-calf heifer, £1 10s., Mr. Jary; second best, 10s., Mr. Kerrison. For the best pen of breeding ewes, £2, Mr. H. N. Burroughes; second best, 10s., Mr. T. W. Gilbert. For the best pen of lambs, £1 10s., Mr. Jary; second best, 10s., Mr. T. W. Gilbert. No prizes awarded for pigs. For the best two-year-old agricultural colt or filly, first prize of £1 10s., and second, 10s., Mr. R. Gillett. For the best year-old ditto, no prize awarded; second best, 10s., Mr. T. Gillett. For the best foal, £1, Mr. T. G. Tuck; and for the second best, 10s., Mr. R. Gillett. There was no competition in grain or roots, but some ploughing was well executed during the day in an adjoining field, and prizes were awarded to the best hands, and also to a number of other labourers.

In the evening the members of the Society dined together at the Globe Inn, under the Presidency of Mr. H. N. Burroughes, who was supported by Lord Sudeley, Mr. R. Palmer (late M.P. for Berkshire), Mr. E. Howes (M.P. for East Norfolk), and about fifty other gentlemen.

THE LONG SUTTON PLOUGHING MATCH.

There are few more thoroughly English scenes than a country ploughing-match on a hale genial autumn day. Never, perhaps, is rural life seen to more advantage, as never do the different classes of the district meet more becomingly together. Everyone has really an interest in what is going on. The squire, the clergyman, the farmer, all enter fully into the business of the occasion, while the very townspeople catch the excitement, and talk learnedly of drawing a furrow, making pretty work, and so forth. But the holiday has a charm even beyond this. The cotter's wife cannot resist the temptation of coming to see how her old man is getting on, and she is "certain sure" to be kept in good countenance. There is the parson's wife in a pony carriage, the young ladies from "the house" in their brother's dog-cart, and clever active Mrs. Wheatear trudging about from headland to headland, nearly as good a judge as those august personages, the judges themselves. Then there are the stewards, riding to and fro, each magnificently distinguished by the smartest of rosettes; the county member more than usually complacent and agreeable; with a bevy of John Ploughman's personal friends, every one of whom has his "pint" upon the performance. And in the presence of so goodly a company the many different pairs continue their allotted course up the field, at that sober, serious pace so congenial to the nature of the contest, the competitor only just exchanging a word or so with a horse or a neighbour, as he turns for another bout. "*Gee*, Boxer!" "Gently, Dragon!" or a doubtful shake of the head, and a half-smile accompanying the "Can't say yet, sir," that stands in answer to a word or two of encouragement.

It would be hard to admit, as some authorities would occasionally have us, that such meetings as these are not susceptible of great good. For our own part, we believe that they are attended with immense benefit to those chiefly concerned, and that the proceedings are rarely without a lasting influence. A ploughing match, although the distinguishing title of such a gathering, is rarely confined to excellence of this kind. There are, commonly, premiums for many other descriptions of skilled labour, as well as for good conduct and long servitude. Complain as some critics may, the stubborn facts are still before us. Prizes of the character we have referred to are even yet on the increase, while in those districts where they have been any time in action the effect is plainly apparent. The people are better workmen, better servants, and better citizens. They live in more comfort, and with more mutual respect. Crime and intemperance proportionately decrease, and while one man feels he has a good name to keep, another knows he has a reputation to get.

The Long Sutton Agricultural Society has been steadily realizing so happy a consummation. Unlike the majority of similar institutions, it has limited rather than increased the field of its operation. From a meeting embracing a show of cattle and implements, it has come to centre its strength on a ploughing-match. And, no question, this was wisely determined; for, saving a few flocks of Lincoln sheep, the district is by no means famous for stock. In fact, the Association has come to direct itself almost altogether to the encouragement of the labourer, and it does so with the now customary enlarged notions of what a ploughing match should be. To begin with, there are premiums in ploughing for farmers' sons, yearly servants, single men, boys, and one grand all-England open class. But beyond these there are rewards for shepherds, waggoners, hedgers, thatchers, and drillmen. Then, there is another series for servants, male and female, who have lived the longest time in the same place; for those who have brought up the largest families; for boys and girls who shall best acquit themselves in reading and writing; and for girls who excel in knitting, sewing, and shirt-making. In a third classification we come to the allotment, with a premium for a rood of land cultivated in the most profitable manner; and others for cottages and gardens which are the best managed. There is, no doubt, much that is objectionable here. Many of these incentives we shall be told, as we so often have been, are debasing in their influence and inquisitorial in their action. The labourers themselves really care little about them, and their effect, if any, is rather pernicious than otherwise. In the face of such criticism we must go to facts as we find them. There are few such associations, we think, better supported than that at Long Sutton. We mean, in saying this, there are few where the working people themselves enter more keenly into the competition offered them. Almost all the classes were well filled, and whether it was ploughing, hedging, or thatching, there was scarcely a farmer but had a man to enter. The result of such a continued system of rivalry, or, in other words, of *improvement*, must be surely self-evident. Then, again, the claimants in the long servitude, good conduct, and cottage-garden sections, were equally well represented; and all with this one great deduction. For years past the character of the district has been rising, and the Superintendent of the Police at Sutton left the other day, with the declaration that nowhere was there so little crime or even intemperance. Some will argue this may or may not be traceable to the influence of the Agricultural Society. We are quite ready to leave it an open question. But we have at the same time a very strong opinion of our own as to the actual utility of such a means.

Considered, however, more strictly as that it professes to be, and which would certainly be the chief attraction to the stranger, the Long Sutton "ploughing match" promises to take very high rank amongst such meetings. Indeed, the champion ploughing on Wednesday was generally pronounced to have been some of the very best ever seen. The ground, to be sure, was in capital condition for showing good work, and many of the men proved themselves quite worthy of the opportunity. More, perhaps, than usual interest was taken in the proceedings from the three great firms of the Howards, the Hornsbys, and the Ransomes having entered for the premium. But the recent discussion had not here that "point" which was expected, as the Messrs. Hornsby did not make their appearance, and public opinion went very generally with the judges when they declared Ransome's to be the champion ploughing. The work of Mr. Howard's man was justly commended, and Yorkshire, Norfolk, and other implements received the customary comparison with the favourite swing plough of the county. Still the local performances were very inferior to that in the all-England class, making it a debatable matter whether the man or his tools were the more in fault. Notwithstanding the annual proof now afforded them, even the best farmers cling very strongly to their own sort, although some of their servants appear more open to conviction. On the day after the meeting, we were riding over a farm where one of the unsuccessful competitors was at work. In conversation, he expressed himself anything but satisfied with his defeat, maintaining he should have done as well as any of them with "one of them other ploughs." The "other," of course, meant the wheel-plough, while Will's master adhered to the home-made one.

As something of a zest for the employers themselves the society makes an offer for a few acres of the best roots, and the award over the mangold wurzel crop created a good deal of excitement. It went once more in favour of Mr. Hobson, who has all the credit of clean careful cultivation. We followed the judges in their round of inspection of the different farms on the day after the meeting, and, in the face of some considerable discussion, should have been quite prepared to go with them. Another great, if not the chief feature of the programme, was the offer of fifty pounds for the best application of steam-power to the cultivation of the soil, although this resulted in a comparative failure. In fact, the three entries in competition were all worked on much the same system—that is with different modifications of Smith's apparatus, but with different descriptions of engines. The most remarkable amongst the latter was Mr. Walker's locomotive, which this year did get into the field, but that we should fancy could never be relied on until furnished with the Boydell endless railway wheel. We give a paper in another column on the trials of the steam engines, in which, however, the great point of a comparison was wanting. Indeed, it is a question whether, under the circumstances, the prize in full should have been awarded.

Whatever the subject of steam-ploughing may have lacked in its illustration in the field, was amply made up for by the discussion at the dinner. We never remember one where the talk was more usefully directed to the real business of the day. Mr. Smith, of Woolstone, Mr. Romaine, and Mr. Walker were all present, as well as Mr. Dring, the tenant to whom the prize had been decreed. The judges also joined in, and a very animated, but well-regulated debate was the result. There may not have been much new matter in this, but it was in excellent time and place, and may do much to familiarize the system with those of the Messrs. Dring's neighbours, who have not yet advanced so far as themselves. Other as congenial topics were not forgotten; and Mr. Randall, for the agents of the landlords, particularly distinguished himself in upholding that kind of tenure for which Lincolnshire is so famous—where, in his own words, "Confidence has become a tenant's right, and tenant-right a custom." As a labourer's society the men had quite their share in the proceedings. After dining together, they entered in a body to receive their prizes, distributed in turn to them by Mr. Spencer Skelton, as Chairman, who laboured very zealously and successfully in discharging the really arduous duties of the office. He was well supported by Mr. Packe, one of the county Members; Mr. John Clarke, the Secretary of the Society; the Rector of the Parish; and the Corn-exchange as a dining-room quite full of agriculturists, and others as much interested in the occasion. There were, in short, few drawbacks to a day that we think it a duty to dwell upon. The Clergyman, to be sure, was singularly unfortunate in the style and taste of his address to the labourers: it could scarcely have been more injudicious. And the ceremony of crowning the champion ploughman with a new hat, encircled with fine flaunting ribbons, when he comes up to the table for his prize, might be advantageously dispensed with. It is such customs as these that bring the proceedings under hostile criticism, while the effect to the champion's own friends might be positively alarming. Their first conclusion on seeing him so bedecked would be that he had "listed."

THE STEAM PLOUGH PRIZE AT THE LONG SUTTON SHOW.

An effort has recently been attempted to make the public familiar at these meetings with the varied applications of steam-power to the cultivation of the land. Such a feature of these gatherings has been one of great attraction, and done much to increase their popularity. Inventors have not been backward to recognise this desire to do justice to their endeavours. Both Messrs. Fowler and Smith have exhibited their methods, and have met with great encouragement.

This year a special effort was made by the committee of the Long Sutton Society, and £50 was offered as a prize for the best application of steam power to the cultivation of the soil. Mr. Fowler was unable to compete; Mr. Rickett's had not completed his engine; so that we had only three forms of Mr. Smith's apparatus. *They were all exhibited by tenant-farmers of the neighbourhood.*

Mr. T. B. Dring, of Gedney Marsh, received the £50 for the work done by what is called Chandler's application of Mr. Smith's principle. The improvement consists in the windlass being combined with the engine, and driven by cog-gear direct from the fly-wheel shaft, by which arrangement the strap is dispensed with, and with it many hindrances that arise in wet and windy weather, when the engine and windlass are separate. This engine is of ten-horse power, and produced by Messrs. Robey, of Lincoln. From the drums hung upon the hind axle, the ropes proceed through a double-snatch block, right and left, to the extreme corners of the field or space to be cultivated, the engine thus forming the apex of the triangle, whose base is formed by the implement's line of draught. Two implements were worked—the ordinary Smith's cultivator, with improved spud points; and Chandler's three-furrow balance plough, which did not show good work.

Mr. T. Dring, jun., brought into competition Mr. Smith's apparatus as it is now manufactured by Messrs. Howard, of Bedford, which presents no improvement beyond what was described at Warwick in July. The engine employed was of ten-horse power, manufactured by Messrs. Clayton and Shuttleworth, and the implement used was the five-tined cultivator fitted with broad speed points.

The third set of apparatus deserves particular notice, because, of the three, it approaches nearer to what, as practical farmers, we require. The implement, windlass, &c., are Smith's; but the engine, a locomotive, is the joint production of the exhibitor, Mr. James Walker, of Terrington, and Mr. Savage, an engineer, of Lynn. The day previous to the trial, this engine started at 2 o'clock in the afternoon, and arrived upon the field, a distance of six miles, in comfortable time to set down, carrying all that was needed with it. When the trial was over, on the following day, at about 4 o'clock it walked composedly home, and arrived soon after dusk. All this was done without the aid of horses; the wheels being large and plain. The engine, however, only a 7-horse power, was never designed for the purpose to which it is put, and was not equal to compete comparatively, as to the amount of work done, with the better and newer engines employed by the two Mr. Drings. This engine might have been of 12-horse power without increasing its draught more than 1½ cwt., and then it might have taken the prize, possessing as it does the additional advantage of carrying a seven-hours' water supply.

The Judges would, we think, at all events have been quite justified in swerving slightly from their instructions, and founding their award less on the actual amount of work done, than on the means of doing it; for the nearer we approach a self-contained machine, and direct communication of power, the nearer we come to a solution of the difficulties that surround steam cultivation. Robey's engine, as now made, requires so many horses to lug it about, that it never can be generally used. Place it on Boydell's, or Romain's improved Boydell's wheels, and the difficulty is removed. As Mr. Walker was the only competitor who dispensed with the use of horses, or nearly so, we think at least a portion of the prize was due to him. He worked Mr. Smith's 3-tined implement with large shares; did splendid work; cut every particle of ground, and left it rough and exposed to the influence of winter. He also showed an arrangement of snatch-blocks at the extremities of the line of work, which did not necessitate the stoppage of the implement at the ends, and gave him an advantage over the others in turning, which may be represented as 3 to 1. The whole of the work done by these cultivators was extremely good, and a great inroad was made on the small amount of prejudice which yet remains in this neighbourhood against steam-cultivation.

In addition to the prize which will be offered another year by this society for the best application of steam-power, there is already offered by Mr. Smith a prize of £20 for that 100 acres of land best cultivated by any application of steam power.

CUMBERLAND FARMERS' VIEWS ON THINGS PAST AND PRESENT IN FARMING.

At the Cumberland and Westmoreland Society's Meeting, Mr. JOHN GREY, of Dilston, said, I cannot say that I am a stranger to this county, although I have not visited it for some time past. It was not my intention to obtrude upon you anything personal to myself, but old feelings and recollections have been so vividly recalled by my present visit, that I can scarcely forbear making a few remarks of a personal nature. It is now nearly fifty years since I resided in the vale of Lorton, one of the loveliest spots the sun ever shone upon, and which still remains in my recollection with all the native ardour of youth and imagination. When a boy I lived there with an old clergyman. I took the opportunity yesterday of revisiting the scenes of my youth. I found the lovely Vale there as of old, unchanged in all its beauty; the same familiar mountains rearing their majestic heads over the peaceful lake of Buttermere, which was once the joy of my youth. I don't wish to impose upon you the sentimentalism which inspires my own breast, but that visit recalled to my mind the kind of stock and cultivation there used to be in those days, and showed how great was the contrast of the present day. I recollect that the worthy parson with whom I lodged kept a cow. It was of a type now gone out. I see none of its progeny in the present day. It was one of those respectable matronly animals, with red sides and long white streaks, with horns so adjusted that it was necessary for it to go with mathematical precision in order to enable it to get its head within the door of its byre. I remember to have seen specimens of a breed of cattle at Mire House and Workington, whose places have since been almost entirely superseded by the usurping short-horn. Nor is it to be lamented that these relics of a former time are gone, for, though they were certainly picturesque objects in the surrounding scene, they did not possess the advantages of early feeding and quick maturity which the farmers of the present day find absolutely essential to the supply of the fast-increasing population of this country. That population, I am happy to say, are now able by their earnings to indulge in beef and mutton, which was not so much the practice at the time I have mentioned. We know that early pay is the thing now to be aimed at—a quick return for the money laid out; not to wait till they are four or five years old, but to feed them from their birth upwards, so as to bring them quickest to maturity. That, however, is a subject which I need not enlarge upon; but there is one thing peculiarly appropriate to the season which I may be permitted for a moment to advert to. My time and experience are now of considerable extent, but I never saw so great a failure in the root crop as there has been this year in all the northern counties of England and parts of Scotland. This is accounted for in various ways. Some tell you it is owing to the excessive drought of the past season; others will say it is from the extreme mildness of the winters we have had of late years, and the absence of those severe frosts and snows which destroy the insects which are so inimical to roots; but one thing I should wish to impress upon your minds in this, that wherever there has been any great exception from a failure so general, I have always found it to be in those situations where autumn cultivation has been attended to. The land has been made up in the previous autumn, on the removal of the crop, and allowed to become mellow under the winter rains and frosts; in all cases where this course has been adopted there have been abundant crops; whereas on land differently treated, however well managed and well manured during the heat of summer, turnips have not grown at all. The circumstances of the present early harvest give farmers a great opportunity for observation and experience of this description, and I am glad to find that in my neighbourhood many agriculturists are taking advantage of what they have seen, and are now making up their land into drill rows for the reception of their crop.

Mr. Gibbons said, it was certainly a novel feature in agricultural exhibitions to see steam engines at full work reproducing the operations of the farmstead upon the field. Had anybody told us a few years since that such things would be, he would have been considered more fit to be in a lunatic asylum than to be going at large. He hoped that the improvements in this department were still in their infancy; and progress must be their motto if they wished to keep pace with the agriculture of the country.

Mr. Gillbanks said, it had afforded him much pleasure to observe that agricultural implements were daily becoming less massive, less cumbersome and more compact, lighter and cheaper—much cheaper and more practical in every sense of the word. They might depend upon it that light, practical, and cheap machinery were the great pivot upon which all agricultural success must eventually turn. He was struck by the great number of men who came to Burgess and Key's to purchase implements of every description. It was not the rich nobleman spending £40 upon a new implement to please a favourite tenant; it was not the enthusiastic amateur squandering his money without calculation; nor was it the man who simply spent his money in order to astonish his neighbours, and usually concluded by astonishing them in a very different way to what they anticipated; but it was the comparatively poor but honest men—the horny-handed practical farmers, who were determined to avail themselves of these improvements. He heard of ten or fifteen of these men clubbing together for the purpose of going to Warwick to lay out their money in the purchase of some agricultural implement, worth from £50 down to 5s., for their mutual benefit and for the benefit of the locality in which they farmed. These were the men who generally prospered, and he hoped they would always continue to prosper. When he contrasted this conduct with, he would not say the laziness or the want of skill of some of the Cumberland farmers, but with the prejudice and obstinacy of some, he could not help feeling ashamed to see them still plodding on in the beaten track of the Fell-side forefathers of an age gone by. When he saw these Fell-siders running a-muck against the improvements of the age, it only reminded him of poor addle-headed Don Quixote, the chivalrous Knight of Cervantes, who would insist upon attacking a whole range of windmills at full sail, under the delusion that they were a regiment of soldiers, with a poor rotten old spear. We know what became of that gentleman, and they might be pretty able to guess the fate of those who rivalled his foolhardiness. He had been told that day in a jocular manner that retired tradesmen made the best farmers. Well, he thought there was a great deal of truth in that; and why? They were men who made money by laying out their capital freely and with confidence in their early career, and when they had made a fortune in trade they turned to the country and settled down as good farmers. And, I must say, continued Mr. Gillbanks, that when I see a comfortable homestead, with everything in apple-pie order, with an elegant portico and a well-swept lawn, with, in summer, a voluminous display of crinoline gliding within an avenue of trees, I put that down as belonging to your retired tradesman and incipient farmer. Nay, they really did know something about farming, and set professed hands an excellent example. But what was the career of a small holder who never stirred out of the beaten track? He had a small farm, worked like a galley slave for 40 or 50 years, eating the bread of carefulness and taking no rest, till at length, having saved some £200 or £300, he had reached the summit of his ambition, and, to use a homely and familiar Cumberland phrase, was enabled to retire and live, theoretically and practically, "upon his own bottom."

DEATH OF CATTLE FROM EATING YEW BRANCHES.—At Red House, Hursley, lately occupied by Mr. Fowlie, bailiff to Sir W. Heathcote, Bart., there is a yew hedge cut to fancy shapes and figures. This operation was performed during the past week, and the cuttings, which Mr. Fowlie during his occupation always had carefully collected and burnt at once, were on this occasion suffered to lie on the grass of the field. Alongside, in this field, Mr. Newton, of Ashley, had about thirty heifers to feed, and on Thursday morning some boys out picking mushrooms found eight of them lying dead at different places. A ninth was apparently in great pain, and a strong emetic given to it showed the cause of the death of the others, namely, the eating of the yew cuttings from the hedge.—Hampshire Independent.

ON DRILL HORSE-HOES.

The growing of root crops in raised ridglets of ground that were placed at the distance of twenty to thirty inches apart, very soon suggested the application of an implement with which to move and work the intervals, in order to destroy the weeds, and to pulverize the soil. This operation was further devised to cut and pare the sides of the ridglets, leaving a narrow rim, in which the young plants of turnips are placed, thus reducing the labour of the hand-hoe to less than one-half of the time which would be required without the application of such an implement. The bottom of the intervals were to be moved and wrought, and the sides of the ridglets cut, in order to kill the weeds, and pulverize the intervals of ground.

After a considerable time had elapsed of invention and trial, the long-established implement of the best use is the Northumberland horse-hoe, drawn by one horse, consisting of a wooden beam, with two forked handles, in the length of the common plough, with a cast-iron breast, on the point of which is fitted a two-winged share of wrought iron. On the sides of the beam, at the point of mortise in the top of the cast-iron breast, there are, moveably affixed by an iron staple, a timber narrow-squared slab of two to three feet in length—the hind end of which is slipped upon a graduated iron circle, that is fixed across the under-end of the handles of the implement. This graduation regulates the width of the two arms, which are fixed in position by a screw nut. Two iron arms are fixed by wedge in the ends of the wooden bars, and reach down into the bottom of the intervals, with the under ends bent and curved inwards, to suit the edges of the drills, and the points, to meet in the intervals at the hind end of the implement. The under end of the iron arms is sharpened into a knife, which cuts the weeds below the surface, and pares the sides of the ridglets. The two-winged share in front ploughs the bottom of the intervals, and altogether there is moved the entire outer area of a half-square, with a circular end.

The arms of timber and iron being removed, a cast-iron mould-board is attached to each side of the implement, by means of an iron rod passing down through thimbles fixed in the board and in the implement. In this form the implement is used for the purpose of earthing-up potatoes, and of turnips, till now that the latter is discontinued.

On all turnip lands, of the proper designation, this implement performs the work most completely, so that no better execution can be wished or expected. In damp weather and on very weedy soils, with chickweed and spurrey, the cutting knives carry along an accumulation of weeds and earth, which must be slipped off by bending backwards the under end of the knives. Even then the work is unsightly with heaps of weeds and earth. It may be said that the work should not be done in wet weather; but on large turnip farms the urgency of operations admits no delay, as in damp, if not very wet weather, the weeds overtop the turnip plants, and much damage the crop. And the hand-hoeing of the turnips is often compelled to be done in damp weather on extensive farms.

Light iron scarifiers are contrived, with several tines or cutters, and a duck-foot share, and a harrow attached behind, which scarify the bottom of the intervals, pare the sides of the drills, and shake the weeds from the earth. The performance differs little from the work of the horse-hoe described.

Howard's prize horse hoe is of this description, and the ridging plough fitted with cutting knives very much resembles the implement of Northumberland, with its knives and arms.

Morton's expanding horse hoe is very ingeniously contrived to be narrowed or widened in the cutting tines, on the principle of the parallel ruler, which sets the cutting face of the knives in a straight line; whereas the circular graduation widens the hind-end without the fore-end, and places the face obliquely. In dry weather, and on the proper soils, the performance is most excellent, and it pierces stiffer lands than the implements that have been mentioned. But in damp and showery weather, and among an abundance of annual weeds, as chickweed and spurrey, the close position of the several coulters carries along a large collection of earth and weeds, which very much entangles the work, and disturbs the operations. The implement is too short in the length, and the motion is in consequence ricketty and wanting in steadiness, while the number of tines prevent the penetration of the grain in the proper depth. It goes deeper than the other hoes, but is still deficient.

The stiff-bottomed lands and clayey loams, on which are grown the crops of potatoes, Swedish turnips, and beet root, are not penetrated by the scarifiers, as have been mentioned; the number of tines or coulters throws out the implement; the surface is skimmed, but the ground is not moved. The miniature iron plough, drawn by one horse, pierces and ploughs one side of a drill with a common furrow, which is laid into the interval; in returning, the side of another drill is pierced, and another furrow joined to the first, which completes the working of the interval. The ground is pierced by the plough, and fresh soil is turned up to be wrought and pulverized. An operation of the knives will very beneficially work the two furrows that have been laid together, or the ploughing may be continued throughout the summer, in being twice or thrice repeated. The miniature plough is superior on any land to the scarifiers with several tines, as on dry lands and in dry seasons the narrow point penetrates the ground, and raises moisture for evaporation to be imbibed by the tender leaves of the young plants. The passing of twice along each interval will be objected to, as the other scarifiers do the work at once; but true economy consists not in getting work cheaply done, but in getting it well done; and in this case the superiority is very great, after all that has been spoken and written on the subject of horse hoes. Two miniature ploughs, of timber, are fixed together by two bars laid slanting over the beams, and at the distances of the width of one drill of land; two horses walk in the intervals on each side of it; the plough is drawn along, and pares a furrow from each side, and lays it in the interval, leaving a narrow rim or row, in which the plants are grown. This is a simple and most effectual implement, and finishes an interval in one passage, though requiring two horses: the labour of this additional horse-hoeing is well repaid by the superior execution of the work, with which no tined-scarifier can compete.

In the West of Scotland the cultivation of potatoes is most successfully practised on the stiff-bottomed loams of that rainy climate. The mould-board is unscrewed from the common plough, and the intervals of the potato drills are ploughed and wrought by the skeleton implement, and no better cultivation has yet been done. No scarifier could effect the purpose.

Every implement that is provided with several prongs, tines,

or coulters, which constitute so many points of resistance, will fail in competition with the plough, which forms only one point, and enjoys that immense superiority. Grubbers may much assist cultivation, but are unable to commence the work in the first movement of the land; the number of points prevents the effectual operation of any single; and the principle of moving the ground is inferior to turning it up. If an enormous steam plough can be made to drag through the ground any grubber with three or four narrow or broad-footed coulters the ground is only moved, and not turned-up to the beneficial action of atmospheric influence, and on that account will ever be inferior to ploughing, which being done by steam power, though at less expense than by horse-labour, would hardly seem to warrant the outlay of the large cost of steam machinery. For the above reasons, that manuring the land and not turning it up is inferior to ploughing, so the scuffling of intervals of drills is inferior to piercing the ground by the miniature plough.

J. D.

SIR J. W. RAMSDEN ON AGRICULTURE.

At the meeting of the Craven Agricultural Society, held at Skipton, Yorkshire, on Friday, October 14, Sir J. W. Ramsden, on giving "Success to the Craven Agricultural Society," said:—After having had the advantage of witnessing the magnificent show this morning, and considering that it is only the fifth year during which the society has been in existence, I think we shall drink the toast, not only with hearty goodwill, but also with great confidence as to its success. But, gentlemen, great as has been its success hitherto, and good as the augury is for the future, I look with the greatest confidence to its future welfare, not so much on account of what it has done in times past, as on account of the enormous field of usefulness which lies open before it. We are accustomed to boast of this West Riding of ours that it presents an epitome of the whole life of England—that in the West Riding are represented commerce and manufactures of every branch and agriculture of every description. If this boast of ours be true, the functions we in Craven exercise may be taken as representing the pastoral state, and, as a matter of course, we occupy, as representing the pastoral state, I will not say a discreditable position, but, by necessity, we occupy a lower stage of civilisation in the community of the West Riding. There are also great advantages by which this position is accompanied. We may not have made very great improvements in some parts of the district in times past, but that leaves all the more room for improvement in the future. We have at least this advantage, that whereas other parts of the kingdom have had to work out and to buy at a heavy cost their experience in agricultural matters, we come in at a time when we may reap the benefits which science has developed. We have the labours of other people ready at our hands, and all that we have to do is to profit by them. Now, in speaking of this district of Craven, we find it divided into two separate divisions; one, that in which we are now assembled, viz., Skipton, the capital of Craven, and in this lower region perhaps there is not very great room for improvement. We see here, in the fertility of the soil, and the skill of those who cultivate it, that farming has attained to a very high place in the agriculture of England. But those, as I do myself, who come from the barbarous mountain regions, will derive the greatest benefit from the establishment of this society. We have, I fear, a rather different tale to tell. As far as we are concerned, there has been but very little or no improvement. As you go up among those mountains, you will find that our pastures are still undrained, our roads in many places hardly practicable, our hill-sides devoid of shelter, our farm buildings of a most primitive description, and, in short, that we have a great deal to learn; and I can only hope that we shall have the will to learn it. But if in these districts we are very much behind-hand, compared with the rest of the world, in agricultural improvement, at least we have two mainstays from which our future improvement may be developed. We in Yorkshire are very much maligned by the people of the south, if we are not tolerably, if I may use the expression, "wide awake," in all that concerns our more immediate interests; and also I think that even in these barbarous regions, we are tolerably "well-to-do." There are few farmhouses, however homely the exterior, into which you enter, where the master of the house, if he has great confidence in your honesty, could not, if he were disposed to do so, point out a large bundle of bank notes hid on the top of the clock, or perhaps show you a hole in the wall where a bundle of sovereigns is concealed in the foot of an old stocking. If, then, we have these two requirements of agricultural improvement—that is to say material resources and intelligence to know how to make use of them, I think the prospect for us is not a very dismal one. All we want is to have presented before us, and forced upon our notice, the great advantage which agricultural improvement brings with it. We want to see, in short, that we can drain, and plant, and improve our roads; and when all this is done, that it will pay us well. That is, after all, the long and short of the matter; and I think that is precisely the function which such a society as this is best calculated to afford. We come down from this barbarous region, and can meet our neighbours who live in the more fertile and improved district, and converse with them; they hear our antiquated prejudices, and laugh at us for them; they tell us what they have done, and we see what they have done, and they point out to us that if we choose, if we have energy and spirit to profit by their example, we may do just the same; and when we see a thousand acres of fertile land on those hills which are now lost in wet ridges, and are covered with nothing but bent and ling, and see the wonderful improvement wherever an open ditch is cut to let the water off, I think the evidence of our own senses will show us that everything is ready to our hands, and that we only want energy, spirit, and skill to make use of the advantages which we possess. I must say that in going through the exhibition to-day I was lost in amazement at the high quality, not only of the prize animals exhibited, but of the high average which has been attained. It is not only such men as Sir C. R. Tempest, who is pre-eminent in agricultural societies throughout the kingdom, but we see that the smaller owners of the land and the farmers throughout the country are seeing the advantage of improving the quality of their stock, and that they are associated to do it. Depend upon it the whole matter rests in their hands. It is not by a large-landed proprietor here and there setting an example, by laying out his money, and perhaps not considering whether it will pay or not, but the real improvement of a district must rest in the hands of those who cultivate that district; and it is not until we are able to show them that they can cultivate it and derive a great profit by introducing improvements, that we shall see any material advance in agriculture take place. It is just because I believe that this society is calculated to perform that function that I look forward so hopefully to its success in future years.

THE DUTIES OF OUTGOING TENANT FARMERS.

At the Monmouth September County Court, the Judge, J. Maurice Herbert, himself for some years a practical farmer to a considerable extent, delivered the subjoined judgment, in a case in which his decision had been reserved from the previous court.

DAVID HOPKINS *v.* MOSES LEWIS.

The plaintiff, said his Honour, was the occupier of Trebella farm, in the parish of Skarfrith, in this county, up to Candlemas, 1858; and the defendant succeeded him in the occupation. The action is brought to recover the sum of £6 8s. 6d., being the price of the seed and the labour which had been expended in sowing 15 acres of clover, and which, according to the custom of the country, an outgoing tenant is entitled to claim from his successor. It was not denied that the incoming tenant is liable to pay for the seed and labour where the outgoing tenant has treated the crop with proper care, and done everything which the rules of good husbandry require; but it was alleged that the plaintiff had either turned in his stock during the winter, or had allowed the fences to become so much out of repair as to be of no avail in keeping them out, and that in consequence the clover crop was seriously damaged, and therefore that the plaintiff was not entitled to recover. The plaintiff swears that he had taken the same care of the seeds as if he had been to continue tenant the following year; that he had some calves upon them up to the October sessions, which took place on the 19th of October; that he had a few fat sheep, from nine to eleven in number, upon them for about a fortnight after; that nothing afterwards was turned in, and that no stock was ever upon them subsequently, except that his horses broke through the hedge one night from the adjoining piece of pasture land. He admitted, however, that there was a gap in the fence between this pasture field and the outer field of clover, which was stopped by a gate being placed against it; and he also admitted that there were tracks of horses and cattle in the clover fields when possession was given up to the defendant at Candlemas. His evidence was corroborated by that of his wife, one of his servants, and a neighbouring farmer; and he called Mr. Amos Jones and Mr. Showell Williams to prove the custom of the country. Mr. Jones thought it improper to depasture the seeds with stock after the 1st of November. Mr. Williams thought it necessary to shut up the land before that time. Upon the part of the defendant it was proved by himself, his son, and a man in his employ, that this land was covered with snow when he took possession; and that as soon as the snow went away there were tracks of horses and cattle upon the seeds quite recent; that there was a gap in the fence between the outer field and the pasture land, quite down to the ground, and another in the interval fence between the two clover fields. It was also proved by Thomas Skynner, who was working in a neighbouring quarry during the winter, and by James Edmunds, who lived within sight of the land, that sheep were upon the clover in the winter months, the last witness swearing they were there as late as in the middle of December. There was conflicting evidence as to the amount of produce when the crop was harvested, but such evidence appears to me no farther material than as going to corroborate the direct testimony as to the way in which the plaintiff had dealt with the seeds whilst the land was in his possession. If he sowed good seed in regular course, at the proper time and in a proper manner, and afterwards treated the clover stock as a prudent farmer of competent knowledge would do, I think he would be entitled to recover whatever sum the custom would give him, although the crop ultimately failed; for having done everything which could be reasonably required of him to secure a good crop for his successor, he would have fully performed his duty towards the incoming tenant, and would be entitled to recover the customary remuneration for his services; and if the crops afterwards failed from an unfavourable season, or from any of those natural causes to which a clover crop is liable notwithstanding the best arrangement, his right to recover would not be affected. Again: if he sowed the clover out of regular course, as, for instance, on a field of autumn-sown wheat, which, according to the prevailing course of tillage, would be followed by a crop of turnips, then I apprehend the plaintiff could not recover, though the stock of clover, when the incoming tenant took possession, was as promising as possible. If, however, the crop turn out to be ultimately good, it would go to show that those rules of husbandry, which the outgoing tenant had disregarded, were not under all circumstances absolutely essential; but inasmuch as the outgoing tenant's cause of action must be complete at the time of his giving up possession, his right to recover must be determined by the state of facts *at that time;* that is to say, it can only be established by his showing that he has done everything which can be reasonably required of a prudent farmer with reference to that particular crop, everything which farmers of ordinary skill and judgment think it necessary to do in order to secure a good crop for their own use. Applying these views to the facts of this case, I am of opinion that it was clearly proved that the plaintiff did turn his sheep on these seeds up to a considerably later period of the year than it is prudent to turn such animals upon young clover, and that he also suffered the outer fence to get out of repair, so as to admit the horses and cattle breaking in, to a still later period of his tenancy; but this probably caused far less damage to the crop than the depasturing them with sheep during the frosts of November. And the plaintiff having so acted, I am of opinion that he cannot recover, because having failed to prove that he had done what the rules of good husbandry and common prudence required of him with reference to this particular crop, he has not satisfied the court that he has fully performed his duty to his successor, and has therefore well earned that customary remuneration which is consequent only on the full performance of that duty. I will add, though, for the reasons above given, I do not think it necessary for me to find it as a fact, that I think it proved that the crop was very inferior, except on that small portion of the land where, from the dryness of the soil, the late depasturing was less likely to be prejudicial.

Judgment for defendant. The costs of attorney and witnesses were allowed.

FENCES.

There is perhaps no part of our rural economy so generally and systematically neglected as the management of fences; and yet an insufficient fence—especially on a mixed stock and tillage farm—is a fruitful source of discomfort; not an imaginary, but a real evil. Whatever may be the cause which tends to produce so great an amount of unsightly dilapidated or overgrown fences—whether on the tenant's part, insecurity of tenure, want of capital, skill, or energy—we must not stop to inquire, but proceed to consider the various fences suitable to the many extremes of soil and situation, and the mode of planting, rearing, and maintaining them in a vigorous state of health and efficiency.

The fence most general in this island is the whitethorn hedge, and, considering its permanency under suitable circumstances of soil and situation, it is the best of all our known plants when a good hedge is a desideratum. The soil most congenial to its health and longevity is a good loam with a dry subsoil, and a situation rather sheltered than otherwise. Thus situated, and with proper management, the white thorn may be grown to perfection. On soils of a light thin nature, combined as such soils generally are, with an exposed situation, it will be found growing languidly and dying prematurely. In moss, sand, or gravel, unless due attention be paid to regular cleaning and cutting, the thorn frequently dies very suddenly. In planting hedges under any of the last-named conditions, a mixture of beech with thorn is much to be recommended; as, in combination with beech on such soils, the thorn is found to grow luxuriantly, and make an excellent and lasting fence; whereas, if planted alone, consumptive health and premature death is the result too frequently attendant on the outlay. Beech is one of the most hardy of all our hard wood trees, and possessing as it does the peculiarity of retaining its foliage during the winter months, it makes the very best of fences for a high outlying situation, when shelter is necessarily of the greatest importance. It will thrive and live to a great age on the most exposed situations, provided it has light and dry soil to luxuriate in, and if attention be paid to the regular cutting over annually, it will carry leaf the year round for an indefinite length of time.

In planting a thorn or mixed thorn and beech hedge, the first essential that must be seen to is, that the intended site has a subsoil naturally dry, or that it has been made so by artificial means. The old-fashioned mode of planting on the edge of a mound, formed by digging a trench or ditch, was chiefly with the view of keeping the roots of the hedge in a dry soil, although the ditch occasionally served as a main to convey the water from the surrounding enclosures. This form of fence we consider to be by no means the best: the outlay in its formation is great, and there is also a regular annual expenditure necessary in scouring or cleaning out the ditch: it occupies much more ground, and altogether does not present so tidy an appearance as a hedge planted on the surface, without either ditch or mound. Nevertheless, in special instances, it is the only form in which a hedge can be got, and we will give a brief outline of the method of forming and planting, as in our younger days we saw carried out by a gentleman in Northumberland, and a better manager of fences than whom we have never yet come across. The line of fence having been agreed upon, the first operation of the workman is to run his line by the edge of the intended ditch, and, taking his spade, clear off all the weeds, and level the surface to the breadth of nearly 30 inches back from his line, and along the site of fence as far as his line reaches. He next proceeds to mark off, close by his line, the edge of the ditch, and in doing this turns his face to it, and with his foot forces the spade deeply into the ground at an angle considerable enough to form slope sufficient for the side of it. This completed, he removes his line four feet to the opposite side, and with his face again to the ditch, makes his second cut parallel to the first, and, as near as he can, with the same slope or angle. He has now the exact site of the ditch set off, and goes on to remove the surface soil from it, turning the soil upside down, and laying it about six inches back from the edge of the ditch, and on the ground previously levelled for the line of hedge. This space between the edge of the ditch and the bed of the plants is provincially styled the "scarcement," and is for the purpose of supporting the bed, and preventing loose soil from rolling into the ditch. The bed must be three inches above the level on the scarcement side, and have a considerable slope backwards, so that the roots of the plants incline vertically to the ground.

The bed and scarcement being completed, due care being taken that no weed exists in either of them, the next operation is the planting. And here we would recommend having plants of a good age and strong, and before planting they should be cut with a sharp pruning-knife, so as to leave about four inches of stem on each plant; and thus prepared, the planter takes the plants in his left hand, and with his right places them on the bed previously formed, and at the distance of seven inches one from another. Another workman follows, collecting the finest of the soil from the partly-opened ditch, and covering very carefully the roots of the plants: another spading of surface soil is then put on above that, and then the whole trampled firmly down to secure the plants in their proper position, and exclude drought. The whole contents of the ditch is then thrown out, and made to form a bank above the roots, of a pyramidal form. The usual size of the ditch is about four feet at top, 18 inches at bottom, and two feet deep. The bank should be formed a little flatter in slope than the sides of the ditch, and also should be trampled firm as the work proceeds, and when completed should receive a smart beating over with the backs of the spades, which smooths and much improves the appearance. The soil should be made firm around the necks of the plants, and they should have a level and regular projection. In Northumberland hedges as described are planted and finished off at a cost of from 3s. to 4s. per chain, the severity or otherwise of the work depending upon the variety of soil; and at those prices per chain an average labourer will earn from 2s. to 2s. 6d. per day.

When the fence is completed, it should be protected by a three-barred railing, one line of railing to be set on the outside of the ditch, and another outside the bank on the other side of the hedge, and this to be kept good until the young hedge becomes itself a sufficient fence, which, with proper after-management, it will attain in from 8 to 12 years, according to the favourable nature of the soil or otherwise.

We now come to the hedge planted on the flat, without any ditch or its attendant mound; and to grow in this form successfully it is of primary importance that the subsoil be dry: if not so naturally, resort must be made to drainage. The first operation after the line of fence has been staked out is to trench the site to a breadth of three feet and a depth of 18 inches, and during the operation of trenching care being taken to pick out all the stones and root-weeds. This should be performed in early autumn, so that the soil may receive the ameliorating influence of the frosts until the young plants are put in, which should be in the month of February. When the soil is not altogether of a favourable nature, it is to be recommended to have a few cart-loads of good loam worked into the site of the hedge as the trenching proceeds, and which will be much more likely to favour the ultimate health and well-doing of the hedge than farm-yard manure, which, though recommended by some, I should not in any circumstances apply to a young hedge.

W. J. MOSCROP.

Forest Farm, Wetherby.

RATIONAL SEEDING.

A few more words on rational seeding command a space in your intelligent agricultural columns, as the season is fast approaching for sowing wheat. Let it not be supposed that, because we have advanced but little on this subject for these last two years, our system is admitted a failure, and has become defunct. It is not so, although it has been pronounced by some as being in a deep consumption. Our conviction of its practicability is still more confirmed every year; and it is ever a pleasing duty to reintroduce the subject to our readers, believing it calculated to benefit a vast portion of our agricultural friends.

The eminent Jethro Tull of olden days, the inventor of our common drill, was celebrated for rational seeding and deep cultivation; but, owing to the want of facilities for carrying out his purposes (which, blessed be God! we all, in the present age, have the privilege of enjoying), and for want of the knowledge and aid of our modern machinery, he failed to be successful in convincing the world of its truthfulness, which very circumstance cast a gloom and mistrust over all his adventures, both then and ever since, never to have been recovered, nor considered worthy of notice by the agricultural community, till of very recent date. Tull, however, with all his eminence, appears to have lost sight of one grand, important point—viz., the distribution of the seed into the soil in *single grains*—and appears to have had no idea of the necessity of adjusting the necessary apparatus of his drill to perform this important particular work, and which requirements are wanting in it, to this very day.

In some future paragraphs (with your permission, Mr. Editor), we purpose to extract some of Tull's successful experiments, for the perusal, if not the benefit, of your agricultural readers. It is gratifying to know that many of our brother-farmers have of late years acceded to our remonstrances, and have sown only 1½ bushels per acre of wheat, instead of 3 bushels. The writer can well remember that, in his youthful days, 3 bushels were very commonly used; and it is still, even in this enlightened age, practised in some districts: and sometimes more than this. The most reasonable excuse our opponent-friends make for not sowing their wheat earlier and thinner than their fathers and grandfathers did, is that "their crops get so shockingly foul with weeds before winter, especially the *black grass.*" All this, we admit, is feasible, and not false reasoning; and we ourselves have sometimes (though very reluctantly) been induced to follow their example, and row in the same boat, sowing as much as 2 bushels, because it should "smother the weeds:" but the time is come that we must one and all secure means to avoid this evil, in order to compete with those that do so. By perseverance and assiduity this evil may be very much, if not entirely, obviated. If wheat, winter beans, barley, oats, or peas are to be sown on fallowed land, or after early crops of beans, peas, &c., the land should be once well ploughed, and perfectly and repeatedly comminuted by Bentalling or scarifying, also by harrowing, and, lastly, by rolling, all under one operation, or at one time, not later than the end of July or beginning of August, thus obtaining a beautiful tilth, or seed-bed, or nursery, for all kinds of indigenous and spontaneous seeds to germinate in, as if it were for nursing the most tender annual flowers to be sown in our gardens. In short, every facility should *then* be brought into requisition to obtain abundance of weeds, which will then not have time to ripen their seeds, to be fed off with sheep at Michaelmas-time, or to be ploughed in as vegetable food for the wheat-plants. In fact, it is not extravagant to manure for the weeds before the summer ploughing, instead of for the wheat in autumn, as they will then be encouraged to germinate in more abundance, and at no loss whatever. We have a piece of land at the present time, thus cultivated after one of our early crops, so completely covered with seedling weeds of all descriptions—the progeny of many years' sowings, no doubt—that we are ashamed our brother-farmers should look upon it; but we ourselves regard it as a beautiful crop; and, anomalous as it may appear, this very piece of land, we flatter ourselves, will prove the cleanest of our wheat crops, feeling assured that no other piece would have paid us so well, and effected so good a cure or destructive for the weeds, it may be for many years to come; whereas if the land had been repeatedly ploughed at great expense till the present time, and the wheat sown now early, as it should be, most of the weeds would then have lain dormant, and not have germinated till now, with the wheat, or in the spring, and the crop must have been inevitably smothered, and attended with much labour and expense and loss; in fact, no human art could then have devised means to eradicate them from the corn, not even with considerable expense—an amount of manual toil which cannot now in these times of low prices be afforded. All must, then, "have grown together until the harvest," as the tares (weeds?) are represented to have done in the parable of our Lord. Hence arises the chief motive farmers in general have for adhering to thick sowing, "to choke the weeds," at the expense of not much more, very often, than half crops of corn. If turnips are to be taken as a stolen crop, as they may be with profit on fallows and stubbles, they should be sown at the time of the last operations of harrowing and rolling, whether for pot-boiling or for sheep-feeding, and hoed out timely to uniform distances, whether somewhat thick for sheep or thin for marketing. The weed crop may be left to flourish till the middle of September, or later, if they do not begin to ripen their seeds. If they should show signs of this in some of the quick-growing kinds, when the summer holds out till October, and when the land was ploughed and tilthed early by fallowing, they should be at once ploughed in, with a skim coulter attached to the plough to bury the weeds more effectually, and to prevent their being sort of transplanted between the furrows, and the wheat sown immediately (if it was not first regularly sown broadcast and ploughed in, which, by-the-by, is a good plan) as singly as possible, at not more than one bushel, or at most five pecks, per acre, which is half-a-pint for each square-rod; common sense, however, dictates that even this is unnecessary; but some people will sow double that quantity! Imagine one pint (which is equal to 2½ bushels per acre) to be sprinkled equally over one rod of ground, what folly would present itself for sowing so thick! It is, however, sometimes argued—"But we must grow weeds as well as corn, and we must sow thicker than is needful, to smother them, and do what you will, and say what you may about it, Nature has so provided it, and the Scriptural prophets have foretold that they *will* and '*shall*' for ever spring out of the earth." Yes, yes! but should we not rather grow them and foster them between the times of gathering and sowing our crops, rather than amongst our main summer crops of corn, when they are at full liberty to ripen and shed their seeds in perfection, often in many cases before the corn itself is ripe? To grow weeds with turnips, especially with those intended for sheep-feed, is no matter, but wise foresight, as they will not seed themselves then, and there is plenty of moisture in the land then, in autumn, to feed them and the turnips too, *all* to be returned to the land from whence they came in the shape of vegetable manures, either by the droppings of sheep or the decayed plants themselves.

HARDY AND SON,
Seed-growers, &c.

Maldon, Essex, Oct. 4th.

SONG OF THE HARVESTERS.

BY JOHN HODGESS.

Darkness has fled, with joyous tread
  Comes in the harvest day,
And all things fair its joy to share
  Are making round our way.
The king of light in garment bright
  Robes grove and stream and plain,
As with glad song we haste along,
  To cut the golden grain—
A cheerful band of harvesters
  To cut the golden grain.

The great of earth, of kingly birth,
  To fame and titles born,
With all their powers, more joy is ours
  On this bright harvest morn!
While despots bind their fellow-kind,
  And tyrants forge the chain,
With horny hands and well made bands
  We'll bind the golden grain—
With hearts the while all free from guile,
  We'll bind the golden grain.

Our boast is not of treasures bought
  From blood of toiling slaves,
The crowns we spend no coffins send
  To fill up paupers' graves.
We boast not halls with pictured walls,
  Nor ships that plough the main;
Our pride is health, our seas of wealth
  Are seas of rich ripe grain,
And all the earth must own our worth
  In seas of rich ripe grain.

The gay may join around their wine,
  And full libations pour,
Who sigh for fame may seek a name
  On fields of crimson gore;
We ask not wine, nor will we join
  In strife on gory plain,
But with kind words and scythes for swords
  We'll battle with the grain—
On earth to increase sweet love and peace
  We'll battle with the grain.

Then let's again another strain
  Send on the breeze away,
Earth's voices sweet ring out to greet
  The joyous harvest day.
The bright sun smiles through leafy wilds
  And o'er the meadows green,
The whispering breeze among the trees
  Displays their silvery sheen,
And on the plain the waving grain
  Awaits our sickles keen.

THE HARVEST OF 1859.

I have been so long honoured with space in your valuable magazine for the effusions of my pen, that I at times shrink from my privilege as a contributor, lest I should be found to mislead my readers, or fail to contribute aught worth their reading. It has been my custom for several years past to give my views of the harvest, either in prospect or subsequently to its collection. I regret that from various causes my report should have been so long delayed; however, it has enabled me to arrive at a more definite conclusion as to the real facts, upon which it will be my duty and pleasure to report. I shall therefore give a summary of what is so far reported of the crops and produce, taking them collectively, and in order throughout the country, and, if my report does not extend to an unreasonable length, will endeavour to include both Scotland and Ireland.

Taking the harvest generally it has been one of the most expensive ever known, owing to a most abundant crop of straw, a simultaneous ripening, and consequent extraordinary demand for labourers. The hot, parching weather in July having brought on a premature ripening, all farm work became crowded, men were not to be had, and prices therefore rose immoderately high, particularly in the midland counties. This simultaneous ripening had also the effect of preventing the harvestmen of the earlier districts migrating to the more backward ones, so that the prices in these backward districts, for cutting and stooking only, ranged from 12s. to 30s. per acre. One fact is worth recording here. A farmer had to give 25s. per acre for the reaping of his crop, which, on thrashing, was found to yield two quarters of inferior wheat per acre, which he sold at 32s. per quarter. Many similar cases might be related. In the Fens much of the grain was shed on the ground, owing to the impossibility to procure hands. The wheat crops, however, were so very bulky in straw and thin in grain, that the loss was comparatively light. The oats and beans suffered severely. Nor was this confined to the Fens; many districts suffered great losses.

I shall endeavour to take the counties in their order of latitude, beginning with the southern counties. I find from various reports that much unsettled weather, heavy thunderstorms, and continuous rains occurred during the latter part of the harvest, and led to much wheat being harvested in bad condition. The quality of the grain is fair upon the average, but much thin and blighted corn is found upon thrashing, and the produce is said to be from two to three sacks below the last year's crop. This is important, as it was generally thought the crops in the southern counties, *i. e.*, Cornwall, Devon, Dorset, Hants, Sussex, and Kent, were remarkably good. It is an unquestionable fact, that when premature ripening takes place it always causes a great amount of the grain to be thin and shrivelled; such was the case this season. The barley crops are all reported as being inferior, and under an average. The oat crops are still worse spoken of, except in Kent, where they are good. I therefore do not gather anything very encouraging from the reports of the southern parts of the kingdom. In the south-west absence of rain in the summer has been much felt.

I will now take another line across the kingdom, and shall include the counties of Essex, Middlesex, Oxford, Berks, Wilts, and Somerset. In the latter county much of the wheat has been got together in fair condition; but a good deal has been seriously injured by heavy rains and taking wet in the stack. The same report is given, of thin and blighted grain being found on thrashing, and two or three sacks per acre short of last year. The barley is much sprouted and stained, but the crop is large; as is also the oat crop. Beans irregular, and under an average. These remarks will apply equally to Wilts, Berks, and Middlesex; but Oxford and Essex are better spoken of, and the crops there were heavy: however, they were much beaten down, and do not prove well. Barley has suffered severely from rains, and the winter beans are improving. I do not, therefore, gather much encouragement from my second district, but on the contrary, I believe it will also prove an unprofitable harvest to the occupiers of these counties.

I will now take the next line across the country, in which I include the counties of Suffolk, Cambridge, Huntingdon, Bedford, Hertford, Buckingham, Gloucester, Hereford, and South Wales. In these counties, being about the same latitude, the reports are doleful in the extreme. In Suffolk, the wheat is said to be fifteen to twenty per cent. below par. The barley is so much injured that not one-half will be fit for malting; much of it was sprouted prior to cutting. In Cambridgeshire not much better is reported; crops never varied more. The heavier the crop, the worse the produce; rains were heavy, and much carted out of condition. Beans fair. Oats good. Some good barleys were secured—the Fens wretched. In travelling westward, we find the same unfavourable report. In Gloucestershire, both wheat and barley were much laid by heavy thunder-storms and rains; so that the crops came light to hand, and the yield will be much inferior to 1858. Beans and oats fair. In Herefordshire the harvest weather was beautiful, but the crop of wheat is said to be much lighter than the past two years, and a great decrease in the quantity of acres sown. The rains having been tremendous in the summer, it has caused a thin and varied sample. In one instance, a wheelbarrow filled with stones was carried along by the flood. The midland counties of Beds, Herts, Hunts, and Bucks are rather more favourably spoken of; but the same premature ripening took place, owing to a scorching July and the same fall of heavy rains; so that I do not gather a favourable account of the prospects of these counties. Like all similar districts, the samples are only varied; but the crops being rather lighter in bulk of straw, the produce in grain is somewhat heavier. In South Wales the crop of wheat and barley are fairly spoken of; but oats are light: rains have damaged them.

I take another line across the kingdom, and in this shall include the counties of Norfolk, Lincoln, Northampton, Rutland, Leicester, Warwick, Worcester, Stafford, Shropshire, Cheshire, &c., and North Wales; and the reports given of these counties are more discouraging than of others. Nottinghamshire is said to yield one-fourth less than an average yield of wheat, of very varied character; and barley is the worst and most varied crop known for years, and also one-fourth below an average yield. Oats fair. Peas fair. Leicestershire is rather better reported. A fair yield of wheat, but of inferior quality. Barley is inferior in colour and weight. Oats fair. Winter beans bad; spring ditto good. Lincolnshire is a large county, and bears away northward. The fens are very defective. The wheat amazingly heavy in bulk, but grain light and bad. Oats are a very rough, but good crop. Beans good. Peas fair. The higher lands are bulky in straw, but are better in grain, although very inferior to most years; certainly by no means an average crop. Barleys are heavy and coarse. Oats fair. Beans good; winter ditto bad. In the western counties in this latitude the same character of the harvest is given, but rather more favourable. The hot July and the heavy thunderstorms, however, have done them great damage. Winter beans in the west are well spoken of. In looking over the reports connected with this line across the kingdom, I have the impression left that, like all others, it will be found very defective in yield and quality as respects wheat and barley, and fair for oats, beans, and peas. In the produce of flour from wheat, it will be found full one-fourth below an average of years, but the quantity of wheat per acre will not be so low; perhaps one-sixth below an average would be near it, but bad in productive quality.

I will now take the northern counties — York, Lancashire, Westmoreland, Durham, Cumberland, and Northumberland. It is remarkable that, while the midland counties have been enjoying one of the most productive seasons ever known, the northern counties have been suffering most severely from a long and continuous drought, no rain of any consequence having fallen from April to July. The pastures are therefore burnt up. The barleys and spring crops generally were bad, and the wheat crop is the only fair one; it also is very light in straw, but is yielding fairly, and the wheat is of good quality. In Yorkshire the wheat and barley crops are well reported of. In Cumberland and Durham wheat is well spoken of, but the barleys are various in yield and quality, generally under an average, as are also oats. Beans are nearly a failure in Cumberland, while in parts of Durham they are good. In Westmoreland all the crops are deficient, and in Lancashire they are not well spoken of. From this also assumed district I gather that a fair proportion of wheat of average quality will be forthcoming, but that all the spring crops will be greatly deficient. I have taken pains to collect information relative to our country's harvest, and the result is that, as a faithful reporter, I must say that it will be found a very defective one as regards the produce of wheat itself; and further, that this wheat will not yield the usual average of flour, but will vary in the product to from three to five pounds per bushel. The barley crop, as a whole, is one of the worst on record for the maltster; a large breadth has suffered much from sprouting and bleaching, so that a good sample of pale malt will almost be a curiosity. The produce of the crop is certainly much under an average one, and very thin in grain. This is the general report, but when the storms and heavy rains are taken into account, we do not wonder at its bad malting qualities. Much of it must of course go for feeding purposes. The oat crop is much more favourably reported of, and, with the exception of the northern and one or two of the south-western counties, is highly spoken of. It is likely to turn out well, and a fair breadth has been sown. The quality, owing to the vicissitudes of the weather, will of course vary much. In the midland counties the yield will be abundant. The straw, a very full crop, will be coarse, but very indifferent fodder; it almost rotted on the ground. The bean crop is reported of in nearly the same terms. The northern and south-western counties, owing to the absence of rain, have all defective crops, in many cases total failures; but the midland counties are all fairly spoken of, except the winter variety, which in many places totally failed. This will not be a productive crop, certainly not an average one, but the quality is fair, and it will relatively bear a good price.

The pea crop is not so well spoken of, although no great complaints are made, and these have not so totally failed in the northern counties. The early varieties are good, and the general crop may be taken as nearly an average one; but the samples of peas themselves are small, which must detract from the yield and price.

The quantity of old wheat remaining unsold by the farmers is no doubt considerable; but as the harvest was a very early one, we may calculate upon a *thirteen months* year to another harvest; so that all will be more than wanted. There is unquestionably great prosperity in our manufacturing districts, and therefore a great demand for bread will continue; added to this, there does not appear to be any great surplus of grain to come from abroad, most of Europe having suffered alike with ourselves; so that I have come to the conclusion that when the first pressure of grain upon the market is freely over, we may anticipate a gradual and steady improvement in price, particularly for wheat.

REGISTRY OFFICE FOR FARM SERVANTS.—A registry office for agricultural servants has been established in Farringdon, with branches in some of the principal parishes in the district. The object is to promote the abolition of "mops" or hiring fairs, which often prove demoralizing to the young persons frequenting them, and a public meeting is announced to be held here shortly, in furtherance of the same desirable end, when the Right Hon. E. P. Bouverie, M.P., is expected to preside. In order to compensate the labouring classes for the loss of their annual holiday, which would result from the discontinuance of the hiring fair, it is proposed to establish in the various parishes, where practicable, a rural treat, somewhat similar to the "harvest home" gatherings, which are now becoming general in this neighbourhood.—*Wiltshire Mirror.*

THE CULTIVATION OF THE BEET ROOT.

The autumnal meeting of the members of this Society was held in the large room at the White Horse Hotel, Ipswich, on Tuesday evening, when Mr. A. Packard, of Woolverstone, read an able paper on "The cultivation of the Beet Root, and its feeding uses." Mr Manfred Biddell, vice-president of the Club, presided.

Mr. **Packard**, after a few prefatory remarks, proceeded with his paper as follows :—

The subject for discussion this evening I feel to be as important a one as we can well discuss, materially affecting as it does our pecuniary interests. Our Committee evidently esteem it as such, by the prizes which have been offered for the November meeting; indeed, agriculturists, almost without exception, are turning their attention to the beet root crop, no matter whether a person is farming fifty acres, one hundred acres, three hundred acres, or a thousand acres, no matter whether he is farming stiff clay land or rich loamy lands, or light sandy land; and very rightly do I think they are turning their attention to it, for where can be found a root that will produce so much weight, that will afford so much provision for stock, that will so well supply their cattle with provision at nearly all times of the year, and so much less liable to risk of adverse seasons (than other roots) as the beet root: and I find that where we grew perhaps ten acres or fifteen acres—and that was considered ample, a few years since, and as much as ought to be grown upon a farm of three hundred acres—we are now growing our thirty or forty, and even sixty acres. I think this clearly shows how important a subject we have here for discussion. There also have been many papers read, followed by animated discussions, upon this same subject. Some few years since, Lord Althorpe addressed the London Farmers' Club, I think it was upon the subject; the result of the discussion then was, that it was not considered advantageous to grow the beet root extensively owing to the extensive autumn cultivation requisite. Mr. Baker, of Writtle, has more than once, I believe, addressed the London Farmers' Club upon this subject; at one time he endeavoured to show the advantage that would be derived from growing beet root, that sugar might be extracted from the bulb, and the leaves stripped off whilst the root was growing and used as a food for milch cows; this latter process I should most decidedly object to, as I consider the bulb derives great benefit from the leaves; and it has been proved, that in proportion as you strip off the leaves, so will you diminish the weight or size of the bulb. At another time Mr. Baker showed the advantage that would be derived by increasing the breadth of the beet root crop and growing it instead of the turnip, and also the great use of this root for all descriptions of stock. I am about to take the same course as Mr. Baker took in his more recent introduction of the subject. At our May meeting Mr. Bond, very properly I think, drew attention to the low per-centage of farming business. Well, I know of nothing so likely to increase that per-centage as by increasing the extent of the beet root. He also expressed it as his opinion that the heavy clay lands should have more stock imported into them than is at present. Well, gentlemen, I know of nothing which would tend to carry that object into effect so well as the extension of the beet crop. Mr. Bond also said that he thought the heath lands of Suffolk would soon become a disgrace to Suffolk enterprise. Well, if the breaking up of those lands is considered right, I know of nothing so suited to make them corn-producing as by first growing beet root upon them, and by a repetition of so doing. I think I am right in saying that this system is being carried out to a certain extent by a very enterprising gentleman not many miles from this town. I understand he grows beet root extensively upon these light lands, and with very good success. I hope he is a member of this Club, as, if not, he ought to be, and, if present, I am sure he will do good service to this Society by giving us a few details as to the carrying out the system. I do not know how it is, but of late years the turnip crop seems to have been a partial failure—at one time time affected by disease, at another by caterpillar, at another time by grub or wireworm—that it has appeared almost useless to attempt to grow it, and we have been compelled to resort to the beet root; and how fortunate it is that we have such a source to flee to, for we certainly have here a root that, if we desire it, will completely supply the place of the turnip crop, and with much greater advantage to the grower, for I think it is generally considered that it will produce a third more in value than the turnip crop, and that at the same cost of cultivation. I am corroborated in this opinion by one of the largest growers of beet root in my own neighbourhood; but this latter I hope to show more clearly by-and-bye. Then, again, we have a low price of corn: and, for all I know and can see, are likely to have for some time to come. Well, then, how necessary that we should direct our attention to the growth of this important crop (the beet root), whereby we shall be enabled to produce beef, mutton, and wool more extensively than we now do; and with the present prices for these articles, it must be a better paying system—that of grazing and breeding &c.,—than corn growing; but somehow or other, if we pay great attention to this root crop, we cannot by any possibility neglect the corn crop. The old adage "Take care of the pence, and the pounds will take care of themselves," might very well apply almost in the same way to this subject; for I might say "Take care of the root crops, the corn crop will take care of itself"—that is, as a matter of course, we shall be sure to grow good crops if we farm well for the root crop, and consume it upon the occupation. I will now say a few words upon the origin and introduction of the beet root, and then pass on to the more immediate subjects for discussion. The beet root or mangold wurtzel, which latter appears to be the right name, seems to have originated in Germany, and has been for some length of time cultivated there and in France and Switzerland, both as food for cattle, and also for sugar, previously to being introduced into this country. Mangold Wurtzel are two German names, meaning "a root of scarcity," but might well be reversed and called a "root of plenty," for certainly with a heavy crop of mangold wurtzel there is not much chance of a scarcity of food for cattle during the greater part of the year. I find it was introduced into Great Britain about the year 1786 : some seed was sent over here from Germany, with a letter of recommendation, which got into the hands of a Dr. Lettson, who, with great zeal, commended it very highly to the favour and adoption of British farmers; so you see that it has grown in this country about 70 years, and I have been very much struck to think what slow progress it has made amongst us till within the last few years, but now it seems to be increasing in extent of growth perfectly marvellous. It is now grown almost in every civilized nation of the world, where the climate is suited to its growth. I find that in the Island of St Helena it has been grown to very great perfection, the climate being evidently well suited to it; that at the time of Napoleon's banishment there Sir Hugh Inglis sent over to England two roots, each weighing 56 lbs.; and that by well manuring there has been grown there as much as 70 tons or more to the acre. I fear it will be some long time before it will be so prolific in its yield with us. There are various sorts of the mangold wurtzel, such as the yellow globe, the red globe, the long yellow, the long red, the ram's horn, and others; the two former are considered the best adapted for light lands and shallow soils, being heart-shape, tapering at both ends, more like a turnip, and consequently better adapted for such soils; the long-yellow and long-red beet I consider are best adapted for heavy clay land and strong mixed soiled lands, as growing most above the soil. I think I may say that all descriptions of mangold wurzel have been much improved of late years, and depend upon it the better the quality of the root the greater weight will be obtained. Now, how careful we ought to be in procuring a good quality of seed, and I must think we are greatly indebted to those growers of the best seed who are paying such great attention in the selection of roots for seed: they are really doing their country some service. The best seed grower I know of is Mr. Ward of Great Bentley, in Essex, and I am happy to say too we have some good growers in my own neighbourhood—some members of this club. I would strongly recommend our friends to be very particular as to purchasing their seed, not to mind an extra 6d. per lb.; for what is it in comparison with four or five tons an acre more of beet root? I will now direct your attention more immediately to the cultivation of the beet root. First, upon heavy clay lands, and I would class the stiff mixed soiled lands with these, believing that the same system of cultivation is equally applicable to one as to the other. I wish you to understand at the outset that I am not an advocate for what are termed long fallows; I believe such to be a positive loss to the occupier of the soil, and also as much loss to the nation: I have sometimes thought to myself when will the time arrive that the working man may be enabled to purchase beef and mutton? At present I apprehend the upper and middle classes, and perhaps the highly paid mechanic, are the chief consumers of such meats, the price being too high at any rate for the agricultural labourer to think of giving; and, I have said, certainly not so long as the heavy clay lands produce so little meat, certainly not so long as long fallows are the order of the day, and if I can in any way this evening persuade my heavy land friends to increase and extend the growth of beet root, not leaving a single acre of the land without something upon it, I think I shall not only be doing some service to them, but also to the working man, because once get the root crop grown, stock must be had to eat it, and the butcher must be the better supplied with meat, and, to a certain extent, the price will be the lower, coming perhaps within reach of the working man.

Our friend Mr. Bond advocated the system of making our heavy lands breeding farms; I have not the slightest objection to that, although I would much prefer making them grazing farms; but to have the same description of stock upon all such occupations would be quite impracticable—some must be grazing farms, some must be breeding farms; however, supply and demand would soon regulate all that. Well, then, to grow beet root extensively upon heavy clay lands great exertion, great foresight, judgment, and ability, must be used; and I would here remark that if there is no call for a person's ability, tact, and judgment in farming, why any noodle will do for a farmer, and it certainly will be throwing money away if we give our sons not a classical education only, but if we give them a good sound English education, such as is requisite to a man of bussiness. I for one, however, am of opinion that it takes a more clever man to become a good farmer than is generally supposed; I should not think of making the son which is most deficient in ability a farmer, I think most likely he would be better adapted to stand behind the counter in some tradesman's shop. I said great exertions must be used, and these especially in the autumn; I would strongly recommend that as soon as the wheat is secured, the plough should be set to work and plough up the land; depend upon it one earth in August, or even in September, is worth two or three in March or April. I think we should find by the time harvest is over the wheat stubbles would be all once ploughed, and again directly ought we to turn about and plough them back again, and we should find, taking the average of seasons, that the land is pretty well cleaned. I am not presuming for one moment that there is much grass in the land, that I should deem quite out of the question; I take it that heavy land once cleaned is the easiest kept so of any description of land. Well, thus the land would lie till after the wheat is all sown, then again directly after I would recommend ridging it up, say 30 inches apart, and thus the land would remain till the spring; and the first opportunity which offers itself I would recommend that 10 or 12 carts of farm yard manure per acre be carried on, and 3 cwt. of guano or 4 cwt. of artificial manure sown over the ridges, and then split them down as soon as possible after, and letting them remain so till the proper season for drilling in the seed; there would, by so doing, most likely be some frost in the meanwhile to pulverize the soil; if not, dry weather and rain alternately would act almost in the same way. If the weather permitted, February would be the proper period for dividing the ridges, and from that time till the latter part of April the soil would be sure to become pulverized. I believe this is the only way of insuring a plant of mangold wurtzel, whereas by working the land about March or April so much depends upon the weather as to whether a plant will be obtained. I recommend drilling the seed in preference to dibbling it in, as there is more despatch and the singling them out will not be so much consequence in the event of our being rather backward in that operation. It may be thought that to grow mangold wurtzel thus extensively on heavy land is quite impracticable. I am of opinion it is not so. Of course it has to a great extent been considered so; but remember it was not till recently that the cultivation of the beet-root upon heavy clay lands attracted so much attention, or that the discovery of guano was made, or the manufacturing of manures adopted. Then again, no one has scarcely been bold enough to set us an example, and we Englishmen are very fond of having had a precedent set us. Now, to my mind, this matter does seem to be quite capable of being carried; 'tis very likely the steam plough would greatly facilitate this object; I have very little doubt that it will in the next generation bear a very important part in the cultivation of the land; but without even the steam plough, I think this system can be carried out, and that without much or any extra help. Why not, if found requisite, purchase two or three pair of Devon working oxen? Plough them as long as you want them and then shut them up to graze. I will engage to say there will be no depreciation in the value of them, but that if you keep them till the following Christmas they will fetch a high price. However, I would recommend the work upon the farm, to some extent, to be re-distributed; and although I said it would be as well to cart 10 or 12 loads of farm-yard manure per acre for the beet root, as a rule I would say, cart none at all, in order that there may not be so much work to do, at that particular time of the year, and also that the land may not be so much trodden upon. Apply, instead, an increase of guano or artificial manure, and I have always found that this will produce just as good a crop of roots as farm-yard manure, and not cost so much per acre. I well know it is generally considered that the beet root cannot be grown without a very heavy cost; some have gone so far as to say it costs £10 per acre, and indeed, I have very little doubt that the more manure that is put upon the land the greater the crop will be, and so would any other root crop; but upon a large scale, and where the crop is going to be fed upon the land, I do not think such a heavy expense needed; and by the improved state of the land which this extended growth of beet root will bring about, I really do not think the land will be found to require it. To carry out this extension of the growth of beet root, I think there is one especial alteration necessary to be made upon a farm, and that is, that our present plan of carting manure for the wheat crop just before ploughing and sowing the wheat must be done away with in order to give more time for the autumn tillage, and I would recommend that the manure which is intended for the wheat crop be carted directly after haysel. I think we should find our wheat crop none the worse for this alteration, but experience has taught me that it is improved by it. If, then, such is the case, we may well adopt that course; and as I have proposed to abolish the long fallow system, there would be plenty of time for carting manure upon the clovers; and there is also another advantage not to be overlooked, and that is by manuring the clover stubbles after haysel, more second crop would be produced, either for feed for sheep or for mowing, either for stover or for seed; and if this abolishing of long fallows is carried into effect, and a difficulty should even be found in finding work for all the horses, what an opportunity is offered for rearing of colts: each farmer, according to the size of his occupation, might have one, two, or three or more brood mares with foals by their sides, and I know of nothing which pays better than rearing of good Suffolk cart colts. I recommended the ridge system, and especially upon heavy lands, because in the event of the autumn not having been well suited to the tillage of the fallow land, an opportunity is afforded of completing the operations of cleaning the land between the ridges and after the beet root is up and ready for hoeing. I believe it quite possible, with Ransome's ridge or beet plough, to make quite as good a fallow as if the land had no crop growing upon it, or even with a common plough, by going twice between each row of beet instead of once; but as economy and despatch are two great essentials when producing upon a large scale, I certainly should prefer an implement that will do the work as well in going once in a place as the other in going twice.

Having thus grown our crop and cleared our land, the next thing to consider is the storing this crop, the securing it from the frost. This certainly is a very important item, and in some seasons a very difficult one. I propose that one-fourth of this beet crop be fed upon the land, precisely in the same way as we should feed off turnips, and without any previous pulling and storing. I think it quite possible to have that quantity so fed off before the wet season sets in, and to have the land ploughed up in time to receive the frosts. I would begin to feed off in September, as those beets which were put in early would be nearly ripe by that time; and we have some of us had experience that sheep will do well upon beet root fed thus, even till Christmas time, especially with hay or barley straw, cut or uncut, and half or three-quarters of a pound of oil cake per day each. Thus, then, one-fourth part of crop is taken care of without much trouble and expense, and the land, I think, must be materially benefited by the process; one-fourth part more I would cart to the land adjoining (let it be either a clover layer or an old pasture), to be consumed there in the spring or summer months. Now, I know of nothing so calculated to improve these old heavy land pastures as feeding a portion of the beet root upon them, accompanied with a portion of oilcake or other food or corn; I believe it a far superior method of improving them than that of breaking them up and relaying, which system I have heard recommended. And with regard to feeding a portion of the beet root crop upon a young layer during the spring and summer months, why it must be a very cheap process of manuring that field for the wheat crop; and supposing that field lies a long distance from the homestead, just calculate the difference in the cost of manuring between this process and that of farm-yard carted from the homestead; and being so amply provided with provision for the horse stock in the shape of beet root, a portion of the clover can well be spared to be fed with sheep where it grows. The remaining half of the beet root crop I would have carted home for the use of the horses, bullocks, cows, and other stock to be fed in the straw-yard; but I do not at all think it necessary that this half should be all carted direct to the homestead. I would suggest the more easy method of carting it only to the two sides of the field in which it is growing, and there clamped up to be carted home to the farm-yard at a more convenient season, when the weather permits, perhaps during a frost, but a very large portion of it might remain till the spring and summer: there would be very little land thus wasted, and think of the immense saving in horse and manual labour at that important period of the year. As soon as a field is clear the ploughs must be set to work to stetch it up, and if in the spring it is thought that the land is not in a sufficient high state for the barley crop, two or three cwt. of guano or artificial manure will bring it up to its original position.

I will now pass on to the cultivation of beet root upon light and mixed soiled lands, and allow me to say that I believe on these soils the beet root can be grown to much greater advantage than either the swede or common turnips; and at no more cost, I contend that, with the same amount of tillage and manure, a greater weight of beet root can be grown than either swede or common turnip. I well know that opinion has prevailed that the beet root crop is very expensive to grow; I believe that to be the chief reason why its growth has not been extended so much as it otherwise would have been. I certainly am of opinion that no crop will bear forcing so well as beet root, and that it will increase in weight in proportion as it is manured, more visibly, perhaps, than anything else; but as my object is to see it grown extensively, and instead of turnips on light lands, I want those who hear me to see clearly that a greater weight can be grown, with only a minimum of cultivation, of this root than of any other. In discussing this part of the subject, I shall principally give my own practical experience, combined with a few observations kindly forwarded to me. I would then, almost in the same manner, recommend the system of breaking up the wheat stubbles in harvest and after harvest, as I recommended upon heavy land, with this difference, that instead of the plough, I would use that valuable implement which bears the name of our respected vice-chairman, and whose father, I think, is justly entitled to be considered the inventor, I mean Biddell's scarifier, and which has invariably had the prize awarded to it, at the agricultural exhibitions, as the best scarifier; I would recommend that this scarifier should be used in breaking up the wheat stubbles, and that as soon as a field is cleared. I have almost invariably scarified twice in a place, and after two or three harrowings have put the scarifier through again, and whether the weather is fine or foul, I have always found it right to keep this implement at work till the commencement of the wheat sowing season; and again after that season is over (weather permitting) I have put it through for the fourth time, and then after harrowing the land well two or three times so as to get all the old grass and rubbish at the top, I plough it in, rather deeply, leaving it so for the winter; this system answers admirably well. In spring I have sometimes been quite astonished to see how clean the land is, having found that after once ploughing in the spring the land is quite ready for the beet-sowing; I then commence ridging it up into ridges about 27 inches apart, and here I would observe that I do not think it positively necessary, provided the land is already in a pulverized state, that it should be twice ridged up, unless it is thought desirable to cart farm-yard manure, and then, of course, it must be ridged up twice, but where it is intended to sow guano or artificial manure only, I do not think it actually necessary, at any rate, I have seen good roots grow from once ridging; first, sowing the guano or artificial manure on the land in its flat position, and then when ridging it up, as a matter of course the manure is chiefly covered up in the ridge. I do not mean to say that splitting the ridges may not be beneficial, but in growing beet root extensively, it is necessary to go the nearest way to work, to enable you to get the crop in during the proper season, which I consider does not extend later than the 2nd or 3rd week in May. I have recommended the ridge upon light as well as upon heavy land, and for this reason, that we are enabled to cultivate between the rows of beet root a fortnight longer than if the beet were drilled upon the flat or stetch. I would grow beet root upon the lightest land under cultivation, and even upon Rushmere Heath, provided it was thought right to break up and cultivate such lands. I have no hesitation in saying this root is better adapted for very light and poor soils than any other root; it would produce a third more in value on such soils, why? because the root does not require the amount of moisture that other roots do, owing to its being of a very watery nature, in fact, it seems to supply itself with water in a great measure. In ridging light land, I would have the ridges as near as I could fairly get them, say 27 inches, a shorter distance than that would be available for afterculture, and therefore I would put that as the minimum distance, and when setting out the plants, 14 or 15 inches apart, I would recommend, thus allowing something like 110 roots to the rod, or 400 square inches to each root; now, as long as we have the same number of roots upon a given rod of land, I think it not at all detrimental to the growth of them that they should be placed wider one way than the other. To my mind it has always seemed an important point to ascertain the number of roots which should grow upon a rod of land, in order that the greatest weight might be obtained, because, after all, it is not so much importance to produce large roots (and which, of course, is much easier to do by having the distance between each root very wide) as it is to grow weight per acre; I believe that 400 square inches, which will allow something like 100 roots to the rod, is the right distance, and the right number whereby the greatest weight per acre will be grown. Mr. Ward, of Great Bentley, grows his beet root at this distance, and as he grows them upon a stetch of a certain width, he sets his roots out 22 inches by 18 inches, which gives a square of 396 inches. The best and cheapest system of ridging light land in my opinion is, with Ransomes' ridge plough to which is attached a marker, so that when drawing one ridge, another is being marked out for the plough to go in the next time, and there is this one great advantage, that the ridges are sure to be of an equal distance, so that the drill may easily be used when depositing the seed, and also the horsehoe afterwards. Besides there is great economy; instead of going twice as with a common plough, once is sufficient, and no time is lost in measuring the distances at each end when drawing out. Now this system, although so available upon land previously made a fallow of, connot be carried out where the land has been growing rye for sheep feed, or stubble, turnips, or tares, and which is frequently the case on light land farms. I know it is not generally considered right to grow beet root upon such lands; but I am very strongly of opinion that there is no root so well adapted for such lands as the beet root, because it does not require the amount of moisture other roots do, and lands which have just been producing a crop are sure to lack moisture more than land which has been previously made a fallow. It is quite impossible to work these lands about, to have them ready for the beet root seed by the second or even third week in May; therefore I recommend that it be only once ploughed at a fair depth, and then that the beet seed be immediately drilled in with artificial manure. I have pursued this plan with some advantage, using Garrett's manure drill, which deposits the manure deeper than it does the seed. I consider I have grown a much greater weight of beet root, after rye, stubble, turnips, and even mown tares, than I could have done with any other kind of root. Upon such land, as well as upon some very light land, I should drill the seed as close as I should turnips, viz., 18 inches apart, leaving them in thickness upon the row as may depend on the state of cultivation the land may be in. I usually when drilling my beet seed use 3 or 4 cwt. of guano, or 5 or 6 cwt. of artificial manure, and this is no more than I should do for swedes, If I made any difference it would be by using 5 or 6 cwt. of salt for the beet root more than I should if I were drilling turnips. With regard also to hoeing and cleaning I find very little difference. When upon the flat or stetch I use Garrett's horsehoe two or three times, and the handhoe the same as I should for turnips.

With regard to salt being beneficial to the beet root, I have not hitherto been very sanguine, but consider it is beneficial thus far, it has a tendency to check small weeds and retain the moisture in the land, two things alone which would, as a matter of course, have a beneficial effect upon beet root, as they would upon any other crop. I think salt has a tendency to check the leaves and to increase the size of the bulb, whilst quality is somewhat improved. Some persons have entertained the idea that salt acts as a manure; I think it acts as a corrector, or as a medicine. A relative of mine gives me this result of a trial he made with fish salt; one portion of a field he drilled the seed in with artificial manure only, a small portion with nothing at all, and the remaining portion with both manure and salt; the result was this, that sown with both manure and salt was very good and much superior to the others; that with manure alone and that with salt alone nearly equal, the salted portion a little inferior, and that portion with nothing at all sown was very inferior; now this says something considerable both for artificial manure and salt. The beet root, growing, as it does, wild on the Mediterranean shores, as well as the shores of our rivers, even in this neighbourhood, the natural consequence would be, we should suppose, that in its more cultivated state it would be improved by an application of salt. A gentleman who has been kind enough to give me his experience whilst writing this paper, and who has had great experience in the cultivation of the beet root, having farmed in several counties, and among other places in the Hampshire Forests, says he has no doubt that those persons who farm by the sea coast are in a better position to grow heavier crops of beet root than those not living so near, from the fact that the beet inhales the salt air, draws in, as it were, the salt that is blown off the waters; now, as it is well known that the vegetable part of the creation breathes as well as the animal and human parts, and as living by the sea-side is generally considered beneficial to the health and growth of children, I see no reason why this gentleman should not be right. This, however, you might say argues as well for other roots and vegetables as for beet root, but not quite, I think, when we recollect that beet root was originally a sea-side plant. With regard to securing this crop, when so extensively grown upon the light lands as I should desire to see it, it would be quite impracticable to secure it all by carting it off the land and consuming the greater part of it at the homestead, neither would it be desirable or advantageous to do so. I would recommend that one-fourth part be fed upon the land with sheep and bullocks, just as we should feed off turnips; and I see no reason why we should not be feeding the beet off from September till Christmas; depend upon it that frosts previous to Christmas do not injure the beet root to the extent generally supposed. If you do not disturb the root till the frost is out, it will return nearly to its original state; it is the repetition of frosts that destroys vegetables and roots, and not merely one or two not very severe frosts, or indeed one *severe* frost.

I think we had good proof of this last November; members of this club were grazing upon beet root in the field at that time, and I am sure they will satisfy our minds on this point, by giving us the benefit of their experience. Well then, I will say, feed one-fourth off without any previous securing; another fourth part I would cart home to the homestead, for the use of the horse, cows, bullocks, &c.; another fourth part I would cart upon the adjoining wheat stubbles, where beet root is intended to be sown next year, and there clamp it up, for the purpose of feeding in the months of April, March, and May: in this way we should be manuring some portion of our land for the next year's crop of beet root, at little expense, especially if we feed the stock with artificial food and cut-hay, &c. I pursued this plan last year, and have now got a capital crop of beet root growing, with only the addition of 2 or 3 cwt. of manure and 5 cwt. of salt; the remaining fourth-part I would clamp up in small heaps in the same field in which they were grown, for the purpose of sheep feeding during the winter months, January, February, and part of March; now this last portion is secured without any horse help, for the heaps, which would contain not more than one load, will be no more than a man can throw together with his hands; these covered up with a little straw and earth, will be easily accessible during the winter, be the frost ever so severe; that portion, also, which is is to be clamped up in the adjoining wheat stubble field will require but few horses, for four horses and four carts will cart a great quantity of beet root that short distance in a week. I admit all this storing of a crop will require a considerable number of men and lads, and it is possible a difficulty may be experienced in procuring them, but I rejoice in the fact that an increased demand for manual labour is the result of the system.

Having said so much upon the first part of the subject for discussion, and having dwelt much longer upon it than I intended, I could have wished that the subject for this evening had been confined solely to the *cultivation* of the crop, the other part being left for a future occasion. I do not know that it is too late to adjourn it to some future time; however, if it is your wish that I should proceed, I will do so, and that very shortly. Having recommended that *part* of the beet root crop be fed upon the land where it is growing, and part upon the land adjoining, it is evident that I consider sheep the stock best adapted for feeding the crop. Although it will be generally allowed that this root is well suited to sheep, and although in discussing "the feeding uses of the beet root," I may allot a prominent position to them, still I by no means consider the beet root a better food for sheep than for other animals; but I have no hesitation in saying that in this crop of roots we have provision well suited to all kinds of stock kept upon a farm.

First, then, I will take the horse stock. Arthur Young, in speaking of the cultivation of carrots, in his work entitled "Eastern Tour," says "they are a means of sustaining one of the best breeds of farm horses in the kingdom." Of course he alludes to the Suffolk breed, which especially of late has attained such notriety. No doubt carrots are a very excellent food for horses; but I think I might with truth say of beet root, that it is also a means of sustaining a good breed of horses, for there is little doubt that it is a very cheap food for working horses and colts, for they have been known to thrive upon that alone. In Germany the yellow beet is in much request as food for horses. In feeding them upon beet root, however, I would strongly recommend giving them as much cut chaff as they will fairly eat with it; and, in fact, the best way is to feed them in the same manner as they are fed with corn, first cutting the beet with Gardner's turnip cutter or Biddell's root grater; which latter I have used both for horse stock and neat stock, and have found it to be a great economizer of food. I have heard of some persons keeping their horses entirely upon beet root and chaff; I am not here to recommend such a system of feeding, but roots given with a portion of corn I do not hesitate to say is the safest, cheapest, and most economical system of keeping horses. See what a saving it is to the hay and stover stock: it enables even heavy land-farmers to feed some of their clovers upon the land, with a portion of beet root as I previously hinted at, as well as light-land farmers. Again, what is more profitable than rearing colts? Suffolk horses are and have been selling at high prices, and I doubt not many of our first-class breeders have found it to be a great source of profit. What an advantage it is then when such stock can be kept in a great measure upon the beet root during the winter months, beet root and chaff being the principal food; and also with regard to riding horses, some persons, no doubt, have been fortunate enough to turn them to a profitable account; indeed, such a system has been recommended at the London Farmers' Club in preference to grazing bullocks. I do not exactly agree with it, but at any rate it will not do for us all to turn our attention to the same description of stock, or the markets would soon become glutted; some must turn their attention to one and some to another department of stock feeding. I believe some persons in this county, which is not much famed for riding horses, have realized high prices for riding colts, and I quite expect to hear this evening that such persons have found the beet root to be a cheap and economical food for such.

2nd. I have found beet root good food for milch cows; it has a tendency to produce milk—an important feature in dairying. It has been objected to as tending to make the butter white-looking, but to prevent that I mix yellow carrots with the beet root in the proportion of one-third carrot to two-thirds beet root. Mr. Baker, of Writtle, says he keeps a large dairy of cows upon a portion of beet from August till the following June.

3rd. With regard to bullocks and neat stock generally, we most of us know what an amount of provision we have for the grazing of bullocks ("those famous manure manufacturers") in this beet root crop, which is so generally allowed to be a good and nutritious food for such stock; little, however, need be added upon this part of the subject; suffice it to say that we are enabled, from the extensive growth and heavy production of this root, to graze all the year round. I used to think when grazing bullocks for the Christmas market that I was compelled to grow a piece of early sown swede turnips for the purpose of feeding during the months of September, October, and November, but since the swede crop has turned out such a failure I have used the beet root and have found it to be so superior to the swede that I shall grow no more swedes for that purpose. A quantity of dry food I have always considered necessary to counteract the watery nature of the beet root, and I always allow the bullocks free access to barley straw, and besides that, I mix cut hay and straw with the roots, diminishing the chaff as the warm weather approaches, for, as a matter of course, the animal will not eat so much chaff in warm weather as in cold, and it will not be so requisite, the watery tendency of the beet root having somewhat subsided. In feeding young growing stock upon beet root, I have found Biddell's root grater, manufactured by Ransomes and Sims, to be a very valuable machine, enabling me to mix out a great quantity of cut straw with the beet root, and it is quite astonishing how it economises the roots, at the same time the stock is benefited by the system.

4th. With regard to sheep, how fortunate it is the beet root is adapted to them, as it enables us to sustitute the beet root for the turnip on an extended scale. I think there are gentlemen present who will be very willing and glad to give us the benefit of their practical experience upon the subject, and, therefore, I shall say but little upon it. I have invariably found that both shearling sheep and lambs do uncommonly well upon the beet root, and that, whenever I have taken them off the beet root and put them upon swede turnips, they have not grazed anything like so well; as a rule, I always supply them with plenty of barley straw, in racks, placed in the sheepfold, as well as cut chaff. I have always found both sheep and bullocks to eat a great quantity of straw, and actually crave after it. The reason that some persons' stock has not done so well upon beet root as could have been desired, is because they have not had a sufficiency of straw, or other dried food. As to breeding ewes, I do not feel quite so sanguine as to beet root being a proper food for them. A small portion of the root will not be injurious to any animal in a state of pregnancy; where injury has been done, it has arisen from giving the animal the beet root without any restriction as to quantity; I do not believe that ewes fed half upon beet root and half upon straw, cut hay or grass, will be at all injured by such feeding; but the further advanced any animal is in the state of pregnancy, the less beet root it ought to be allowed, and the beet root food ought to be reduced in proportion as the animal advances. After the ewes have lambed down I should give them beet root, allowing them gradually a large portion, as the lambs grow older. I think beet root thrown upon rye land or rye grasses for the ewes, is a very excellent plan.

5th. With regard to pigs (and I cannot much recommend the beet root for them) I think it positively injurious to sows in pig and also to small pigs; but for small pigs 3 or 4 months old I believe it well adapted; such pigs will graze as well and pay more money, fed with beet root and beans or peas, than they will any way; the pork would not be quite so good as when fed otherwise, but that is not a question for the grazier.

With these observations I have done; I have to seek your pardon for having detained you so long, and I thank you for your kind attention. I have drawn your attention to the following particulars of the subject, viz.—The importance of the subject for discussion; the cultivation necessary upon heavy and light lands; the best system of securing and feeding the crop; its adaptation to heavy clay and sandy lands; its feeding uses, as food for horses, colts, milch cows, grazing bullocks, young stock, sheep (both grazing and breeding), and for pigs.

I trust we shall have a long discussion upon the subject, in which we are all more or less concerned, and feeling confident that there are many gentlemen, practical men of business, who will be pleased to give us the benefit of their experience, I hope we shall return to our homes, well satisfied that we have been here to some good purpose, and that our time has been profitably spent.

The Rev. CHARLES THOMAS JAMES, formerly curate of Ermington, and recently appointed Government Inspector of Model Lodging Houses and Factory Schools, was staying at the Railway Hotel, Taunton, on Tuesday night, and intended to start next morning for Tiverton. He had been unwell for several days, and was suffering from indisposition when he retired to rest. The following morning, as he did not make his appearance, the servants entered his room, and found him lying on the bed, quite dead. Several phials were found in his room—one containing soap liniment and castor oil, another the sediment of mixed prussic acid and almond emulsion, and another containing about half an ounce of prussic acid of Scheele's strength. Lieutenant Charles D. James, 36th Regiment, stationed at Devonport, was immediately telegraphed for; and on Thursday an inquest was held before Mr. Monckton, coroner. It was shown in evidence that the deceased took prussic acid under medical prescription. Several letters which the deceased had written on Tuesday night were read. One of them, addressed to his son, said that his indisposition almost mastered him, but appointed to meet his son at Plymouth on Thursday. The jury returned a verdict that the deceased died from the effects of an overdose of prussic acid, taken to relieve himself from pain. The deceased was well known and much respected in agricultural circles, not only in this country but throughout England, and had always manifested a deep interest in the welfare of the farm-labourer.—*Western Times*.—Mr. James was a judge of pigs at the Warwick Show of the Royal Agricultural Society, this year, and of riding-horses, at the Suffolk Meeting. He was a member of the Committee of the Central Farmers' Club; and frequently took part in the discussions. His appointment as Inspector of Lodging Houses followed on a very admirable address he made in proposing the labourer at the Chelmsford Meeting of the Royal Society.

AGRICULTURAL STATISTICS OF IRELAND FOR THE YEARS 1858 AND 1859.

ABSTRACT OF CEREAL CROPS.

	1858. Acres.	1869. Acres.	Increase. Acres.	Decrease. Acres.
Wheat	546,964	465,497	—	81,467
Oats	1,981,241	1,981,197	—	44
Barley	190,768	177,519	—	13,249
Bere and Rye	16,472	13,242	—	3,230
Beans and Peas	12,935	14,841	1,906	—
Total	2,748,380	2,652,296	1,906	97,990

Decrease on Cereal Crops in 1859 :—96,084 acres.

ABSTRACT OF GREEN CROPS.

	1858. Acres.	1859. Acres.	Increase. Acres.	Decrease. Acres.
Potatoes	1,159,707	1,200,144	40,437	—
Turnips	338,202	322,266	—	15,936
Mangel Wurzel & Beet Root	29,731	27,108	—	2,623
Cabbage	33,132	31,580	—	1,552
Carrots, Parsnips, & other Green Crops	23,399	22,056	—	1,343
Vetches and Rape	33,360	33,207	—	153
Total	1,617,531	1,636,361	40,437	21,607

Increase on Green Crops in 1859 :—18,830 acres.

GENERAL SUMMARY.

Decrease on Cereal Crops in 1859			96,084
Increase in Green Crops	„	18,830 acres	75,698
Do. on Flax	„	44,683 „	
Do. on Meadow & Clover	„	12,185 „	
Total decrease in the extent of land under crops in 1859			20,386

TOTAL EXTENT, IN STATUTE ACRES, OF CEREAL AND GREEN CROPS.

	1858.	1859.
Wheat	546,964	465,497
Oats	1,981,241	1,981,197
Barley	190,768	177,519
Bere and Rye	16,472	13,242
Beans and Peas	12,935	14,841
Potatoes	1,159,707	1,200,144
Turnips	338,202	322,266
Mangel and Beet	29,731	27,108
Cabbage	33,132	31,580
Carrots, Parsnips, & other Green Crops	23,399	22,056
Vetches and Rape	33,360	33,207
Flax	91,646	136,329
Meadow and Clover	1,424,495	1,436,680

RETURN OF LIVE STOCK.

	Horses.	Cattle.	Sheep.	Pigs.
1858	611,321	3,667,304	3,494,993	1,409,883
1859	628,916	3,810,136	3,588,356	1,262,873
Total increase or decrease	Increase. 17,595	Increase. 142,832	Increase. 93,363	Decrease. 147,010

Total area of Ireland	20,811,774 acres.
Total under cultivation	5,861,666 „

The holdings in Ireland, from all of which returns are obtained, are nearly 600,000. The number of enumerators this year was about 4,000; they were selected from the constabulary.

WILLIAM DONNELLY,
Registrar-General.

Agricultural Statistics Office,
5, Henrietta-street, Dublin.
September, 1859.

PRICES OF SUSSEX STOCK.

"Pristhawes," in the parish of Westham, has twenty years occasionally appeared before the public as the site, where existed a pure and first-rate breed of Sussex stock. The herd was well known and highly valued, having been matured and brought to perfection by Mr. Josiah Pitcher, a man of sterling judgment, but of unostentatious manners. Nothing but true merit has gained him the proud position which he now enjoys as a breeder of Sussex cattle. His stock succeeded in securing prizes at the Paris exhibition for a cow and bull, although the class in which he exhibited was open to other breeds, including the Devons. He has also been very successful at various local shows, especially at Rye, against all Sussex and Kent, in 1855 and 1856, when he obtained the silver tankards. Of late he has not entered the lists of competition, but contented himself with the laurels he had gained. Quietly pursuing his agricultural operations, and successfully prosecuting his business, he decided this year to retire from his farm, and enjoy the fruits of his persevering industry. It, therefore, in the early part of the year became known that the Pristhawes herd would be sold, and those attached to the Sussex stock looked forward to this autumn with great interest. The sale was placed under the direction of Mr. Southerden, and on the 15th September it was sold at such prices as the excellence of the animals deserved. As might be expected there was a very large attendance of influential graziers, agriculturists, and others. There were upwards of 200 present. The satisfactory results of the sale will be collected from the following :—

COWS.—Lot 1.—Pure Sussex cow, six years, forward in flesh, 31 guineas, bought by Mr. Tuppen. Lot 2.—Superior ox, forward in flesh, 35 guineas, Mr. Tuppen. Lot 3.—Cow, five years, 19 guineas, Mr. Hawes. Lot 4.—Cow calf, 8½ guineas, Mr. Hoather. Lot 5.—Cow, five years, 29 guineas, Mr. Thomas Childs. Lot 6.—Cow calf, 12½ guineas, Mr. Hoather. Lot 7.—Cow, six years, £18, Mr. John Gosden. Lot 8.—Cow, took a prize at the Rye Cattle Show, 1858, and the first prize at the County Cattle Show, at Hailsham, in 1859, 47 guineas, Mr. E. Cane. Lot 9.—Cow, six years, 24½ guineas, Mr. T. Smith. Lot 10.—Bull calf, 4½ guineas, Mr. Pagden. Lot 11.—Cow, Mr. Tolboy. Lot 12.—Cow calf, £14, Mr. Hoather. Lot 13.—Cow, six years, 21 guineas, Mr. Jollands. Lot 14.—Steer calf, £8, Dr. Skinner. Lot 15.—Cow, seven years, bred by the late Mr. J. King. sister to the cow that took the Silver Tankard at the Rye Cattle Show in 1856, 24 guineas, Mr. Hawes. Lot 16.—Steer calf, 5½ guineas, Mr. Gosden. Lot 17.—Cow, five years, 25 guineas, Mr. E. Cane. Lot 18.—Cow calf, 12 guineas, Mr. John Shoosmith.—Lot 19.—Cow and bull calf, five years, 25 guineas, Mr. Noakes. Lot 20.—Cow, four years, 23½ guineas, Mr. Verrall. Lot 21.—Steer calf, 8½ guineas, Mr. Gosden. Lot 22.—Cow, three years, 24 guineas, Mr. John Shoosmith. Lot 23.—Cow, three years, from a cow that took the first prize at Hailsham and Lewes Fat Stock Shows in 1858, 40 guineas, Mr. Shoosmith. Lot 24.—Cow calf, 12½ guineas, Mr. Hoather. Lot 25.—Cow, three years, 21½ guineas, Mr. Verrall. Lot 26.—Steer calf, 8½ guineas, Mr. Verrall. Lot 27.—Cow, 22½ guineas, Mr. John Shoosmith. Lot 28.—Cow calf, 14½ guineas, Mr. Hoather. Lot 29.—Cow, three years, 26 guineas, Mr. Heasman. Lot 30.—Cow calf, by a bull bred by Mr. J. Stonham, of Beckley, and took the first prize at the County Cattle Show, at Hailsham, in 1856, 17 guineas, Mr. Tilden Smith. Lot 31.—Cow, three years, 23½ guineas, Mr. Thomas Childs.—Lot 32.—Cow calf, 12½ guineas, Mr. Hoather. Lot 33.—Cow, three years, 23 guineas, Mr. Thomas Barton. Lot 34.—Cow calf, 16 guineas, Dr. Skinner.

HEIFERS IN CALF.—Lot 35.—Very handsome two-year-old Sussex heifer, 22½ guineas, Mr. Heasman. Lot 36.—Two-year, 25½ guineas, Mr. Heasman. Lot 37.—Two-year, sister to the cow that took the first prize at Hailsham and Lewes Fat Stock Shows, in 1858, 28½ guineas, Mr. Jollands. Lot 38.—Two-year, 20 guineas, Mr. Bourne. Lot 39.—Two-year, 26 guineas, Mr. Robert Hawes. Lot 40.—Two-year, 24 guineas, Mr. Jollands.

YEARLING HEIFERS.—Lot 41.—15 guineas, Mr. Hoather. Lot 42.—20½ guineas, Mr. Verrall. Lot 43.—20½ guineas, Mr. Jollands. Lot 44.—£12 10s., Mr. Jollands. Lot 45.—19 guineas, Mr. E. Cane. Lot 46.—£13 10s., Mr. Hoather. Lot 47.—£15 10s., Mr. Heasman. Lot 48.—£15 10s., Mr. Tolboy. Lot 49.—16½ guineas, Mr. Hoather. Lot 50.—£13 10s., Mr. Jollands.

BULLS.—Lot 51.—Very superior four-year-old Sussex bull, bred by Mr. Tilden Smith, to which most of the cows are stinted, 24 guineas, Mr. Frank Childs. Lot 52.—Yearling bull, from the same cow as lot 1, which is sister to the old prize bull that took the first prize as a yearling at the Royal Agricultural Show at Lewes, in 1852, the first prize as a two-year-old at Hastings, in 1853, and the prize as on old bull at Worthing, in 1854, and was the sire of the three, four, and five-year-old beasts—22 guineas, Mr. T. Smith. Lot 53.—Yearling bull, from a cow bred by the late Mr. W. Funnell, by the prize bull that was sold at the sale in 1857, and took the first prize as a yearling at the County Show at Lewes, in 1855, the first prize as a two-year-old at the County Show at Hailsham, in 1856, and the first prize as an old bull at the County Show at Chichester, in 1857, and was the sire of the two-year-old beast—21 guineas, Mr. Tolboy. Lot 54.—Bull calf, 30 guineas, Mr. George Coote. Lot 55.—Bull calf, 23 guineas, Mr. J. Shoosmith. Lot 56.—Bull calf, £16, Mr. Langridge. Lot 57.—Bull calf, from a cow bred by Mr. Tilden Smith, by a bull bred by Mr. Child: this cow took the prize at the Rye Cattle Show, in 1855, and her daughter took the silver tankard at the same show, in the same year; she is also sister to the cow that took the first prize at the Hailsham and Lewes Fat Stock Shows, in 1858—33 guineas, Mr. G. Coote. Lot 58.—Bull calf, from a cow bred by Mr. Tilden Smith, sister to the cow that took the prize at the Rye Cattle Show, in 1855, by a bull bred by Mr. E. Cane—40 guineas, Mr. E. Cane. Lot 59.—Bull calf, £18, Mr. Madgwick.

Steers.—Lot 60.—Pair of very handsome two-year-old steers, forward in flesh, £38 10s., Mr. Elliott. Lot 61.—Ditto, £39 10s., ditto. Lot 62.—Ditto, £37 10s., ditto. Lot 63.—Ditto, £38 10s., ditto. Lot 64.—Ditto, 36 guineas, ditto. Lot 65.—Pair of yearling Sussex steers, £26, Mr. Jollands. Lot 66.—Ditto, £34, Mr. William Duke. Lot 67.—A yearling Sussex steer, £14, Mr. Jollands.

Oxen.—Lot 68.—Pair of working oxen, six and seven years old, 40 guineas, Mr. Hawes. Lot 69.—Ditto, five years, 46 guineas, Mr. Duke. Lot 70.—Ditto, five years, 44 guineas, Mr. G. Coote. Lot 71.—Ditto, five years, 47 guineas, Mr. Tuppen. Lot 72.—Ditto, four years, 47½ guineas, Mr. W. Mannington. Lot 73—Ditto, four years, 47 guineas, Mr. Tuppen. Lot 74.—Ditto, three years, 47 guineas, Mr. Coote. Lot 75.—Ditto, three years, 43 guineas, Mr. Madgwick. Lot 76.—Ditto, three years, 45½ guineas, Mr. Tuppen.—*Sussex Express.*

SALE OF CAPTAIN BALL'S SHORTHORNS,

AT ROBERT'S WALLS, MALAHIDE, DUBLIN.

This important sale took place on Monday, the 3rd October, under the superintendence of Mr. Strafford, of London. The attendance was very fair, and would have been much larger, were it not that many were prevented from being present in consequence of Tuesday being the opening day of the great Ballinasloe Fair. As it was, whilst the concourse of mere onlookers was limited, the gathering consisted chiefly of bonâ fide buyers, not only from different parts of Ireland, but also from England and Australia. After partaking of an ample lunch, the company adjourned to a neighbouring field, when the sale commenced with the aged cows. The following is the list of names, prices, and purchasers:—

Name.	Calved.	Gs.	Purchaser.
Witch	Aug. 20, 1849	27	Mr. F. W. Cusack
Lily	Mar. 15, 1849	25	Mr. Sherlock
Peahen	Feb. 26, 1849	36	Mr. J. Anderson
Jenny Lind	Mar. 20, 1850	20	Mr. N. Archdall
Red Rose	June 10, 1850	16	
Empress 2nd	Mar. 27, 1851	19	Mr. N. Archdall
Katrina	April 22, 1851	18	Sir C. W. Domvile, Bart.
Peahen 2nd	May 25, 1851	30	Dr. Peart
Sunnyside	Feb. 5, 1852	23	Mr. Jamieson
Julia 2nd	April , 1852	46	Mr. J. Anderson
Fairest of the Fair	July 6, 1852	19	Mr. N. Archdall
Pride of Erin	Mar. 25, 1853	74	Dr. Peart
Lizzy	May 24, 1854	52	Mr. T. Barnes
Fashion	Oct. 28, 1854	80	Mr. W. Owen
Agnes 8th	Mar. 17, 1855	35	Dr. Peart
Wood Nymph	April 28, 1855	76	Mr. W. Torr
Fidelity	May 25, 1855	155	Mr. W. Owen
Stella	Feb. 14, 1856	24	Mr. F. W. Cusack
Fancy Fair	Feb. 21, 1856	35	Mr. Jamieson
White Star	May 19, 1857	23	Mr. Jamieson
Peahen 8th	July 25, 1857	105	Mr. Bostock
Walesby Twin 15th	Aug. 9, 1857	63	Mr. Jamieson
Agatha	Jan. 20, 1858	61	Mr. Atherton
Letitia	April 7, 1858	100	Mr. Bostock
Josephine	May 13, 1858	50	Mr. N. Archdall
Fair Maid of Malahide	May 23, 1858	33	Mr. Jamieson
Peahen 9th	July 22, 1858	20	Mr. Jamieson
Woodlass	Dec. 24, 1858	60	Mr. W. Torr
Nightingale	Feb. 1, 1859	32	Mr. F. W. Cusack
Recherché	June 1, 1859	40	Mr. F. W. Cusack
Peahen 10th	June 18, 1859	22	Mr. W. Owen
Florence	June 24, 1859	32	Mr. W. Owen

The average price of the foregoing thirty-two head of cows, heifers, and heifer calves, was £48 2s. With the exception of Sol, bred by Mr. Torr, calved Feb. 11th, 1850, the bulls were chiefly young calves, with two or three yearlings. Sol was purchased by Capt. Farrell for 33 guineas; and Messrs. Jamieson, Bell, Welsh, &c., got yearlings at 30 to 31 guineas; the calves of this year ranging from 20 to 30 guineas.—*Irish Farmers' Gazette.*

TREATMENT OF SHEEP FOR PLEURO-PNEUMONIA.

Sir,—It may be of some use to my brother-farmers to know the result of my treatment of sheep for pleuro-pneumonia. In July I came home, and found that I had lost several ewes: one was ill at the time, and presented all the appearances that a cow does under this disease. I had her killed, and examined her carefully, and found her sound, with the exception of the parts about the lungs, which were just like those of cattle that have died of pleuro-pneumonia.

Some time afterwards, in my absence, my wife heard of another ewe being ill, and had it brought in. She found it apparently in the last stage of the disease, and my steward and shepherd both thought it past recovery. She, however, determined to try the homœopathic treatment, beginning with phosphorus, and continuing with bryonia, and, finally, sulphur. The sheep perfectly recovered. Since then I have had two more cases, a ewe and a wether. The first was taken in time by my steward, and recovered. The latter was very ill indeed; but under his treatment, following the directions of the little pamphlet by Turner of Manchester, he also was recovering, when he was put out in a field with a ram. The ram attacked him, and he was found nearly dead, and was for some days hardly able to breathe, but is now recovering, and almost well. These three examples do not prove the correctness of the homœopathic treatment; but I think they show that it is well worth further trial. Yours, &c., C. G. Grey.

Portnard, Cappamore, October 4, 1859.

—*Irish Farmers' Gazette.*

THE BEDFORDSHIRE AGRICULTURAL SOCIETY held its annual meeting at Bedford, on Friday, Sept. 30, when the show was pronounced to have been generally the best ever known in the county. The exhibition of stock was particularly good, Mr. Robinson, of Clifton Pastures, having the lion's share of success with a number of entries from his herd of well-bred Shorthorns. Mr. Charles Howard was as pre-eminent amongst the Oxfordshire Down sheep, and Messrs. Newman and Twitchell were first and second with the Leicester wethers. The best cart colt was bred by Mr. James Thomas, but is now the property of Mr. T. Battams, who took to him with the other stock at Lidlington; and Mr. Armstrong, of Rockstone, had the premium for hunters. The prize ploughing was more than usually noticeable for the high character of the work, and the firm of Page, of Bedford, were conspicuous for the excellence their implements evinced in the trials. A party of some two hundred and forty dined at the Swan Hotel, under the presidency of Lord St. John, who was supported by the High Sheriff, the town and county members, and a very strong muster of practical agriculturists.

SALE OF BALWYLLO STOCK.

The principal feature of attraction was the Balwyllo herd of pure bred Angus black polled cattle—numbering forty-four animals. We subjoin a list, giving the prices and by whom purchased, from which it will be observed that the celebrated breeders—Mr. M'Combie, Tillyfour; Mr. Lyall, for Lord Southesk; Mr. Watson, Keillor, &c.—have possessed themselves with some of these animals. The bidding was in some instances very brisk, especially in the case of the heifers, the superiority of which seemed to be recognised.

COWS.

NAME.	CALVED.	GS.	PURCHASER.
Keepsake	1851	21	The Hon. Charles Carnegie.
Annie Laurie	1851	22	Mr. Wyllie, Arndean.
Grace Darling	1854	29	Mr. A. Mustard, Leuchland.
Young Fanny	1852	21	Mr. Wemyss, of Wemyss Castle.
Topsy	1856	31	Earl of Southesk.
Mary	1856	20	Mr. M'Laren.
Queen	1856	45	Earl of Southesk.
Eva	1856	37	Mr. Ruxton, Farnell.
Welfare	1856	22	Mr. Jack, Middledrums.
Cherry	1856	15½	Mr. Thow, Derrichie.
Sally	1854	15	Mr. Edward, Huntlyhill.
Susan	1849	25	Mr. Blaikie, Auchindean.
Switchy	1852	27½	Mr. Durie, Denstrath.
Susan (No. 2)	1855	18½	Mr. Jack, Middledrums.
Myrtle	1855	19	Mr. Dingwall, Inglismaldie.
Sarah	1852	31	Mr. Henderson, Harestanes, Fife.
Freedom	1852	12½	Mr. Carnegie, Fithie.
Nightingale	1854	28	Mr. Glennie, Ferneyflat.
HEIFERS.			
Two year olds.			
May-day	1857	29	Mr. Anderson, Cluny.
Young Lola Montes	1857	30	Mr. Stephen, Conglass.
Evelyn	1857	45	Mr. M'Knight, Chapel of Garioch.
Bracelet 2nd	1857	34	Mr. Barclay, Yondertown, Banff.
Modesty	1857	26	Mr. Wemyss, of Wemyss Castle.
Molly	1857	20	Mr. Galloway, Stanton, Fife.
Blossom	1857	18	Mr. Fairweather, Craigend.
One year olds.			
Heiress	1858	54	Mr. M'Combie, Tillyfour.
Edith 2nd	1858	35	Mr. Haig, Glenogil.
Alice	1858	41	Do.
Rosebud	1858	51	Earl of Southesk.
Lily	1858	17	Mr. Barclay, Yondertown, Banff.
Amy	1858	18½	Mr. Wemyss, of Wemyss Castle.
Princess	1858	43	Mr. Lyell, Shielhill.
Primrose	1858	16	Mr. Barclay, Yondertown, Banff.
Dora	1858	16	Mr. Wemyss, of Wemyss Castle.
Charlotte	1858	12	Hon. Charles Carnegie.
Ruth	1858	14½	Mr. Bisset, Newton.
BULLS.			
President 3rd	1856	41	Mr. Watson, Keillor.
Raglan 2nd	1857	20	Lord Milton, Ireland.
Lord Clyde	1858	81	Mr. M'Combie, Tillyfour.
BULL CALVES.			
Emulator	1859	14	Mr. Adamson, Stannachie.
Omar Pacha	1859	11	Mr. Wyllie, Arndean.
Pioneer	1859	21	Mr. Whyte, Spott.
Prince	1859	27	Mr. Guthrie, of Guthrie.
Conqueror	1859	14	Mr. Bisset, Newton.

SALE OF MR. BROWN OF UFFCOTT'S SHORTHORNS.

This well-known Wiltshire herd was brought to the hammer by Mr. Strafford, on Tuesday, Oct. 18. The ring was formed in a field close by the Swindon station, and thus the visitors were saved a long six miles' drag to Mr. Brown's farm. Not a few looked in on their way to the great fair at Hereford, and most of the leading breeders of the neighbourhood, including Mr. Bowley and Mr. Stratton, were present. Out of the twenty-three lots there were no less than eleven of the Graceful tribe, which owed its origin to Graceful 1st, by Killerby. This heifer was bred by Mr. Severs, of Olliver, near Richmond, and bought in Darlington market, and sent down to Uffcott in lieu of one of a lot which Mr. Brown had selected in Durham when he first commenced with shorthorns.

Although his herd has always been small, Mr. Brown has not only won a second bull prize at the Royal Agricultural at Salisbury, but he bore off the gold medal at Smithfield last Christmas as well, with a heifer by one of Mr. Stratton's bulls. His proximity to the celebrated Broadhinton herd induced him to make several good crosses with Hero of the West, Hickory, &c.; but latterly he had used his own Botanist, whose sire Velasco by Crown Prince or Windsor, is at present let for 200 gs. The bidding was not very lively until the fourth lot, Graceful IV. (40gs.), was brought out, and bought like Graceful VI. (54gs.) by Mr. Ruck, from the Cirencester neighbourhood. This gentleman also worked the Earl of Aylesford's agent, Mr. H. Sharp, pretty hard for Graceful V.—a fine deep-ribbed cow; but she fell for 85gs. to his Lordship, who won the first prize at Birmingham last year with Devons, and is now engaged in forming a shorthorn herd. Queen of Scots (56gs.), Paragon (50gs.), and Duchess IV. (51gs.) are also bound for the Packington Pastures, and a quintet was completed by the purchase of Botanist (130gs.), a bull with very nice hair and handling, for whom the Australian agents were exceedingly "busy," although a gentleman from Cornwall made the last bid but one. There was quite an excitement in the ring as the biddings progressed. The Pirate by the Pope, was a remarkably long, low, and thick-fleshed bull, with beautiful quarters. He was bought for Australia as one of an extensive shorthorn order, which has lately arrived from there. The five bulls, three of them under eight months old, averaged £54 12s., and the cows and heifers £39 13s. 4d., thus producing £987, or a gross average of £42 18s. 3d. In addition to the purchasers above-mentioned, we may note Messrs. Staples, Popham (the owner of the celebrated Derby winner, Wild Dayrell), Lawford, Bowley, Butler, May, Davis, and Hutt. Mr. Brown does not, we believe, intend to keep any more shorthorns, but to devote himself to his flock of Hampshire downs, which has already earned no small fame in the district.

LINCOLNSHIRE RAMS WITH THE LEICESTER FRAME OR CAST.

EXHIBITED BY MR. KIRKHAM, OF HAGNABY, AT PETERBOROUGH FAIR.

Sir,—Mr. Kirkham's forty-eight rams making more, or higher by £7 per head, than any other lot of rams in the fair, has set many breeders of sheep to think for themselves how they were obtained. In my opinion, Mr. Kirkham has got rid of all the bad points of the old Lincoln, and retained all the good ones; namely, the heavy wool, size, and constitution, the mainspring, &c. To them he has judiciously added the best points of the Leicester, such as the Bakewell cast or mould, fine bone, and early maturity to fatten, &c. Mr. K. has wisely alloyed them until they are a specimen of what sheep ought to be—bred for profit, useful and ornamental, a great weight of wool and mutton combined at an early age. The truth is neither puffing nor flattery. The able auctioneer, Mr. Briggs, found the value of Mr. K.'s 48 rams to be £1,029 12s. Mr. K. told me, after the sale was over, that Mr. Samuel Tirrell, of Eagleton, Rutland, had bought his best ram at £55, although Mr. Marshall had given him 70 gs. for one. Many competent judges say that Mr. Tirrell's is a model sheep, with a Leicester frame, and a Lincoln skin. Mr. K. has clearly proved and shown what may be done with Lincoln sheep. Mr. Kirkham and Son have made this season £2,852 12s. of rams, which is a fine example. Samuel Arnsby.

Peterborough, Oct. 13th, 1859.

REVIEWS.

TILLAGE A SUBSTITUTE FOR MANURE; Illustrated by the Principles of Modern Agricultural Science, and the Precepts and Practice of Jethro Tull; including an Epitome of Tull's Operative Directions in Successive Unmanured Corn Culture, and the Particulars of Lois-Weedon Husbandry, and other Instances of Tull's Method of Farming,

By ALEXANDER BURNET, M.A., Land-agent, Member of the Royal Agricultural Society and of the Central Farmers' Club.

London: Whitaker and Co. Roberts, Chester. 1859.

The Tullian system of aërial manuring is now upon its trial—perhaps its last; and a pretty severe one it is. Not even on Tull himself was greater ridicule and contempt thrown, than upon those who have revived and proved its validity. Why this should be the case, we are at a loss to conceive, unless we resolve it into ignorance on the one hand, and prejudice on the other; and we all know how far these two anti-progressive principles will lead a man to oppose anything new, however excellent. And, although the Tullian system was started above a century and a half ago, it is still a new one, so far as the practical application of it in husbandry is concerned.

Modern science, however, has thrown considerable light on the subject, leading men of intelligence to reflect how far the discoveries they have made will enable them to account for the successful results of the Tullian system. It is now well known, for instance, that there are certain principles inherent in soils, which possess the faculty of attracting the aëriform fluids floating about in the air, and arising from the various animal and vegetable organisms in a state of decomposition; and that this faculty or power of attraction is increased by frequent tillage. It is, moreover, suspected that one effect—perhaps the greatest—of manures, is still further to stimulate it, by both a chemical and a mechanical action. Now the two first of these discoveries lie at the very foundation of the Tullian system; and the only difference between him and the present advocates of it is, that the nature of those aëriform fluids was unknown to him or in his time, but are now clearly defined, and their properties identified. There is, therefore, less excuse for the opponents of the founder of the system, because the principles involved are now better known and understood.

Mr. Burnet's work is calculated to draw the attention of the agricultural public to the subject, especially at this time, when the low price of wheat has created a good deal of alarm, and in some cases led the farmer to discontinue the purchase of artificial manure.

The main principles he lays down—which, in fact, are those of Tull, illustrated by modern examples—are:

1st.—That root crops, for the purpose of raising manure for the cultivation of cereals, are unremunerative.

2nd.—That the atmosphere contains all that is necessary to produce remunerative wheat or other cereal crops, under certain conditions, without manure.

3rd.—That the conditions are, fallowing and comminution of the soil and continuous horse-hoeing.

4th.—That the soil possesses in itself, by nature, a zero of fertility, which it will maintain on an average of years, the amount of which will be given out in proportion to the amount of tillage bestowed upon it, without manure; the thermometer of fertility rising and falling according to the variations of the seasons.

These principles are substantiated by the practice of Tull himself, in 1712 to 1725; of Mr. Dean, from 1744 to 1764; of the Rev. W. Close, from 1782 to 1785; of Mr. Budd, from 1790 to 1794; of Mr. Beaman, from 1816 to 1822; of Mr. Box, from 1825 to 1832; and of Mr. Clarke from 1857 to 1858. All these experiments were made with the plough. The following experiments were made with the spade or fork: Rev. Mr. Smith. from 1846 to 1858; Mr. Jones, from 1850 to 1858; the Rev. Sir George Robinson, from 1819 to 1858.

The results of these two systems—the plough and the spade—are very remarkable. The average produce (in wheat) of the seven first experiments, under the plough, was 24.3 bush.; whilst that of the second, under spade husbandry, was 33.2 bush., showing nearly nine bushels per acre in favour of the latter. And it is further to be observed that the above produce is from half the land only, the intervals between the rows being of the same width (3 feet) as the part that is planted.

Our space will not allow us to dilate further on this, to us interesting subject. After, therefore, recommending the work to the reader's perusal, we close this notice with the following quotations:—

"Thus, at every turn do we find modern science paying obeisance to the comprehensive and eminently practical genius of JETHRO TULL" (p. 205).

"It cannot be that the English farmer will longer leave the momentous problem involved in these propositions to be solved by amateur experiment, nor less impossible is it to conceive that *landlord* and *agent* will be backward to encourage and even stimulate every reasonable attempt, on the tenant's part, to determine whether 'Tull's Cereal System' may or may not be profitably engrafted on modern agriculture. To be convinced that the present forms of alternate husbandry are pregnant with danger, it is only necessary to peruse with attention the report of a recent most important discussion in the *Central Farmers' Club,* in which wide-spread degeneration of the *real qualitative type* in barley, as well as clover and turnips, is unequivocally asserted on the most conclusive evidence" (p. 209).

BRITISH TIMBER TREES: their Rearing and subsequent Management, in Woods, Groves, and Plantations, &c., &c.

By JOHN BLENKARN, Agricultural Engineer and Surveyor.

London: Routledge and Co., Farringdon-street, and New York. 1859.

The plantation of timber trees has been much more attended to during the present than in the last century. The long maritime war with France, which made it necessary for our very existence as a nation to maintain a large and efficient navy, created a demand for oak timber especially, which almost cleared the country of that valuable and noble monarch of the forest. Since then, many landowners have planted great numbers of oak and other forest-trees, which have already, in some instances, well repaid them for the outlay. In the present day, when a new material has been successfully applied in ship-building, and "Heart of Oak" is no longer the exclusive protector of our white cliffs and shingly shores, it may be supposed that the rearing of timber is no longer absolutely essential to the safety of the country; nevertheless, as our landowners are clearing the hedge-rows of the timber by which they have hitherto been adorned to the prejudice of the crops, it is still necessary that the stock should be kept up for other purposes as well as ship-building, which latter use, in fact, continues to absorb increasingly large quantities of timber, notwithstanding the extensive application of iron. The enormous extension of our foreign commerce, and consequently of our mercantile marine, as well as of our ships of war, is such, that but for the introduction of iron it would have been impossible for the country to have produced mature timber enough to supply the demand. Mr. Blenkarn's work is a well-timed treatise on the enonomy of the forest, and he combats successfully the idea that timber does not pay for the ground on which it grows. "Three thriving oaks, growing on a hard gravelly and poor soil, were felled in Nottinghamshire, which on an average girted 15 feet at three feet from the ground, and each tree contained about 430 cubic feet of timber. The trees were planted in 1692 or 1693, and were above 149 years old when they were felled. As these trees were perfectly sound, and yearly increased in size, it is probable that had they been suffered to remain another century, their bulk and cubical contents would have increased fully one-half. The value of the trees when cut down was more than £120, a sum equal to thirty shillings per acre (without taking interest into account) for the land they occupied during the 149 years of their growth—a reply to such as state that timber will not pay for the ground it occupies, or injures by its shade" (p. 42).

THE CULTURE OF THE PEACH AND NECTARINE.

By George M'Ewen, late Superintendent of the Horticultural Society's Gardens at Chiswick, and formerly Gardener to His Grace the Duke of Norfolk, at Arundel Castle. Edited and enlarged by J. Cox, F.H.S., Gardener to W. Wells, Esq., Redleaf.

London: Groombridge and Sons, Paternoster-row. 1859.

This is a valuable posthumous treatise on the cultivation of two of the most luscious of Nature's vegetable productions, by an attention to the instructions contained in which, any person possessing the requisite of a brick wall, fronting any point between south-east and south-west, may produce these fruits in abundance, in the open air, or, if he has a hothouse, may have them at those seasons when their rarity makes them more valuable. The engraving at the head of the work, of the "Late Admirable" absolutely made the writer's mouth water to look at it.

FARM INSECTS; being the Natural History and Economy of the Insects injurious to the Field Crops of Great Britain and Ireland, &c., &c. Parts IV and V.

By John Curtis, Honorary Member of the Ashmolean Society of Oxford, and of the Entomological Society of France, &c., &c.

Blackie and Son, Glasgow, Edinburgh, and Warwick-square, London.

The known celebrity of the author of this work, as one of the most skilful entomologists of the day, would lead us to expect something superior and complete from his pen; and the work itself fully warrants the high opinion we have entertained of his talents and knowledge of the subject. Embracing, as it does, "suggestions" for the destruction of the insects it describes, it must prove invaluable to the agriculturist, who suffers, from them year by year, far more than he has an adequate idea of. The insidious manner, too, in which most of these "pests of the farm" introduce themselves is little known to the farmer, who is unable to guard against them. We quote the following, on the *tinea granella*, a small moth, as a specimen: "It deposits its eggs on the sheaves in the field, as well as after the grain is stored and threshed out, and it will feed as well upon barley, rye, and oats as upon wheat; and Leuwenhoek adds 'That these worms are not only destructive to corn, but are also in old timber, books, boxes, woollen-stuffs, and the like, &c.' "—p. 317. No farmer ought to be without this work, which, if its suggestions are attended to, will enable him greatly to modify and reduce, if not prevent, the ravages of these universal pests. The engravings are first-class.

CULTIVATION OF THE POTATO.

In lifting and storing the potato crop, the cultivator has an opportunity of observing the relation which the amount and quality of the produce bear to the soil, its situation, the modes of culture, and the variety grown. The season has been somewhat anomalous. The long-continued drought after the potato-sets were planted, with the high range of the temperature during the whole period of growth, would doubtless act powerfully upon the crop; still, the results of the season should regulate in some measure future practice. The produce this season is generally above an average, while the proportion of diseased tubers is unusually small; corroborating, therefore, the general belief that a hot dry season is highly favourable for the potato plant. This agency is not directly under the cultivator's control, and may therefore be dismissed as one which he cannot meet except by change of locality, unless so far as thorough-draining and deep cultivation influence the temperature of the soil.

As in previous seasons, such soils as dry vegetable, light sandy, and calcareous, have produced the largest produce of sound tubers; and that damp and wet soils, particularly those of an argillaceous character, have produced full crops, but with a considerable proportion of the tubers diseased. Lands recently reclaimed from moor have generally yielded an abundant return, with a few symptoms of disease in the tubers. The same result in relation to disease has been observed on reclaimed peaty soils—thus showing that moorish and peaty soils are very suitable for the potato plant.

The influence of situation and of exposure upon the crop has not been so marked as in previous years; still, low-lying and sheltered fields have produced crops with a considerable proportion of the tubers diseased, and those which are apparently sound when lifted are showing symptoms of decay since the crop was stored.

The modes of culture have operated most powerfully this season—doubtless partly owing to the drought and heat experienced during spring and summer. Lands manured in autumn with farmyard manure have generally yielded a much greater produce, and of better quality, than lands of similar character manured at the period of planting with farmyard manure. The earlier the manure was applied in autumn, and ploughed in, the larger has been the produce. The action of portable manures has been less uniform than in previous seasons. This applies more particularly to Peruvian guano. Where the crop has been early planted, and this manure used and applied at the period of planting the potato-sets in addition to farmyard manure, the size and number of the tubers have been considerably increased, and the produce generally sound. This refers alike to lands manured in autumn or spring with farmyard manure. Where Peruvian guano has been used alone or along with a superphosphate in raising the crop, the produce has been small, and the proportion of undersized tubers very considerable, particularly where the crop was late in being planted. Where guano was applied as a topdressing, its action has been also less uniformly successful. Applications of bone dust and of superphosphates as supplementary to other manures have been productive of very varying results. The absence of sufficient moisture doubtless interfered with the manurial effects, especially where the planting of the crop had been delayed. Rapedust as a supplementary manure has generally proved beneficial, particularly in increasing the number of tubers.

The time of planting appears to have caused the most marked difference in the produce, both as to the amount and as to the proportion of diseased tubers. Early planting has proved, generally, highly advantageous. The stems came up vigorously and grew with unusual luxuriance, and the crop was nearly ripe when the blight appeared on the haulms. Deep planting proved advantageous; this doubtless is owing to the greater supply of moisture within the reach of the rootlets of the plant. The early and frequent stirring of the soil after the sets were planted also acted powerfully in causing a vigorous and healthy growth. Early and deep furrowing up of the plants appears to have diminished the proportion of diseased tubers. The distance between the rows and the distance between the plants formed an element of more than usual influence. Wide-drilled fields with the plants wide apart produced under the average of those fields drilled close, with the plants near each other in the rows. Drills of 28 inches, with the sets placed 12 inches apart, appear to have yielded the best results. Never, perhaps, in any previous season was the influence of culture more apparent than this one, both on the amount of produce and the quality of the tubers.

The varieties grown have been gradually diminishing in number. The proportion of sound to diseased tubers has been this season apparently little influenced by the variety or kind grown, the soil and mode of culture being more marked than varieties of the potato. The Regents occupy the greatest breadth. There are more than one sub-variety of Regents. All have produced a full average crop, except those sub-varieties having the stems and leaves of short and stunted growth; these kinds are in limited cultivation. A comparatively new variety in cultivation, generally called Rocks, has yielded a large crop of well-formed and comparatively sound tubers. Red varieties have proved less uniform in produce than in ordinary years. The tubers are generally sound, but the proportion of small ones is considerable. The experience of the last two years is unfavourable to the extended cultivation of the red varieties.

Practical farmers who have bestowed attention on the potato crop this season, particularly at the period of lifting, will probably have observed some facts worthy of being recorded. The marked contrast presented in different fields under different management must have been a frequent subject of comment among cultivators. Those who have made observations will confer a favour by communicating the results, particularly of experiments undertaken with different manures, and modes of applying the manures, periods of planting, with cleaning of the crop, and varieties grown.—North British Agriculturist.

CALENDAR OF AGRICULTURE.

Finish the sowing of wheat if any remains undone from last month. Take up Swedish turnips, store the roots at the homestead, and give the tops to the sheep in the fields or to young cattle in the yards.

Flood watered meadows, and put into proper order for use the main channels, conveying gutters, and the sluices of flood-gates.

Begin to cut underwoods, plant forest trees, open-drain plantations, repair old fences, and make new ones, cast open ditches, and repair roads.

Thrash grain regularly twice in a week to supply the animals with food, and the yards with litter. Cut chaffs from hay and straws mixed, for the horses, the fattening bullocks that are tied up, and for being steamed for the milch cows. Apply all litter to the yards thinly and evenly, and spread over the surface all substances of different qualities for the purpose of being mixed.

Supply to the cattle in the yards, by break of day, an ample feed of turnips, rooted and topped for the fattening animals, and with the tops attached for the other sorts of cattle. Wooden cribs with latticed bottoms suit best, as the filth and rain-water escape freely downwards. The roots should be all eaten up by night, that no accidents from choking may happen unseen during darkness. Give to milch cows the stools of cabbages and beet root, and one feed daily of steamed meats.

Continue the feeding of sheep as directed last month. The animals may be folded over the night on the bare ground in mild climates; but very often they must be allowed to run back for shelter.

Feed pigs as directed last month; give ample littering, and keep the animals dry. Feed poultry with light grains, and with steamed potatoes mixed with meals, and given in troughs placed in a shelter shed in the poultry yard.

Attend to the feeding of young horses in the farm-yard. Provide a regular supply of fresh water in a trough, and a convenient and dry shelter shed. Give hay and straw in chaff, bran and oats, and a feed daily of raw or steamed roots. The first winter's keep has a very great share in making good animals.

Begin to plough stubbles, and fallow with the subsoil plough, and prepare by fallowing the lands intended for the early spring crops of roots, so long as the weather permits the operations of cultivation to be performed.

CALENDAR OF GARDENING.

KITCHEN GARDEN.

Artichokes: Protect the plants by mulch or masses of leaves, after removing all the old stalks and decayed foliage. Dig roots for temporary supply of the so-called Jerusalem artichokes. Store all the potatoes, carefully observing the condition as to soundness and decay. Keep the store very dry. Broccoli and Cauliflower in the open ground should be laid down, and be guarded with a covering of dry earth laid close over the stems.

Carrots: Dig and store; also beet root and some parsnips.

Celery: Finish earthing. If frost threaten, cover the ridges and tops with dry haulm.

Endive: Tie up some plants, and remove others to dry frames for bleaching.

Lettuce in frames: Give air to occasionally. Do the same to radish and salads.

FRUIT GARDEN.

Raspberries are tied to stakes by cords six rods to each, stopping at an angle towards the north; or to a neat open trellis. It is good policy to secure by this means the full exposure of next year's growing canes to the sun. Plants are too much crowded by a perpendicular confined tying to stakes.

FLOWER GARDEN.

Tulips, hyacinths: Plant in rich sandy beds, open the holes, neatly place the bulb an inch or two deep, with dry free sand around each, so that each part of the leaves is touched. Move a few herbaceous plants, roughly fork the surface of beds, and scatter decayed leaf-mould and old cow dung over it. Observe neatness and order everywhere.

Pits, frames, and other erections, with semi-hardy plants, should be kept as dry as possible, and aired at any convenient opportunity. Dry sawdust is a good material to plunge in, as it guards the mould effectually.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR OCTOBER.

The crops having been secured in most parts of England, as well as in Ireland and Scotland, at a much earlier period than usual, and the weather having been tolerably favourable, although the fall of rain has been an average one, ploughing and sowing have progressed steadily during the past month, with the land in fine condition for the reception of the seed furrow. In all other respects, out-door labours are in a forward state, even in what may be termed the most backward districts. In a comparative sense, the quantity of both old and new wheat thrashed out has been only moderate; nevertheless, the demand for that description of produce has not improved, notwithstanding that consumption is on an extensive scale. And here we may remark that the usually large operators in produce have almost wholly declined to speculate either in English or foreign wheat; hence, sales have been confined to parcels for immediate consumption, and the trade has continued remarkably quiet, at prices about equal to those current in the previous month. This state of things, considering the quantity of bread now consumed in this country, and the unusually small supplies of both French and American flour on offer, has created no little surprise in various quarters, especially as it is generally admitted that the yield of the new crop of wheat in this country is inferior, both as respects quantity and quality, to that produced both in 1857 and 1858. It may be somewhat difficult to understand the principle now governing the trade, since we find that the stocks of foreign grain in our warehouses have not increased, and that wheat—the continental supplies of which on offer are not to say extensive—is by far the cheapest produce, even when compared with all the leading markets of the world. The dulness in the trade, and the continued low prices, may, we think, be attributed to two important features. In the first place, large arrivals of floating cargoes from the westward continue to be reported off Falmouth. These arrivals have been sold chiefly for inland consumption, so that provincial buyers have not found it necessary to operate in wheat either in London or at the large outports. In the second place, the leading millers have imported foreign wheat on their own account to some extent; hence they have not been compelled to purchase largely at Mark Lane or elsewhere. So long as this state of things continues, so long shall we have an inactive trade, and it may be well doubted whether there will be any important movement in it during the remainder of the year, even though there is scarcely any foreign flour on offer either at Mark Lane or Liverpool. Barley, however, especially fine qualities, owing to their extreme scarcity, is likely to rule high. Oats, too, will, no doubt, maintain their present value; but both beans and peas are likely to rule lower in price, since it is now ascertained that the produce of those two articles this year throughout Europe is considerably in excess of 1858. For the most part, our accounts from all quarters in reference to the potato crop are favourable. The growth appears to have turned out a full average one as to quantity, and the losses by disease have been comparatively trifling. Prices have ruled from 70s. to 115s. per ton, against 80s. to 140s. at the corresponding period in 1857, and 55s. to 90s. in 1858. The crop both in France and Holland has been a poor one; consequently, very few foreign potatoes can be expected into London during the winter months.

In our leading counties, both hay and straw have been in moderate request. The trade in the metropolis has become steady, at the following quotations:—Meadow hay, £2 12s. to £4 4s.; clover ditto, £3 10s. to £5 5s.; and straw, £1 4s. to £1 10s. per load.

The wool trade has shown signs of very litte activity; nevertheless, prices generally have continued steady. The next public sales of colonial wool will commence on the 10th November, when only about 32,000 bales will be offered. The enormous increase in our exports of woollen goods leads us to the conclusion that present quotations are safe, although the demand for English wool on continental account has not improved.

Considering the extent of the growth, the hop trade has continued in a healthy state, at what may be termed fair quotations. The present value of hops in our market, and the poor prospect of any increase in it, seem to indicate that future arrivals from the continent will be on a very limited scale. The duty here has been done as high as £310,000.

In Ireland and Scotland, fine wheat, barley, and oats have sold at full quotations; but all other kinds of produce have met a very inactive inquiry. Most of the markets have been fairly supplied. Prime fat and store animals have continued to realize extreme quotations.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Although the various markets have been well supplied with both beasts and sheep during the month just concluded, trade generally has continued in a satisfactory state, and prices have ruled high. We may observe, however, that the general quality of the stock has exhibited what may be termed a serious deficiency, when compared with many previous corresponding periods of the year; hence really fine animals have tended upwards in value. In some instances the primest Scots and crosses have changed hands at 5s., very superior Downs and half-breds at 5s. 4d. per 8lbs. Without anticipating any important decline in the quotations, we may observe that the present wide margin between the value of the best and the most inferior breeds is not likely to be of long duration, unless, indeed, our graziers have been very unfortunate in their selection of stock. We must bear in mind that there has been a great abundance of pasture food during the greater portion of the present year, and that an enormous quantity of hay has been secured in excellent condition. Again, the turnip and beet crops are turning out well in almost every county; and the price of linseed and cake is certainly moderate, considering the extent of the demand. With all these favourable influences, however, meat is not likely to be cheaper. We may have large supplies on offer, and we may have extensive importations from the continent; yet, owing to the flourishing state of commerce, and the steady employment now afforded to our artizans, it may be well doubted whether they will exceed the demand. The foreign beasts recently imported have shown very little improvement in their general quality; but we may observe that the stringent custom-house regulations—in other words, the close inspection of the animals by competent persons prior to being landed—have wholly prevented the introduction of stock in a diseased state. The general weight and condition of the sheep have wonderfully improved. Many of the sheep from Holland have sold at 45s. each, and they have met a steady demand at that quotation. Nearly the whole of them have shown signs of crossing with our best breeds—they have carried a large amount of internal fat—and have become favourites with the butchers. It is somewhat remarkable, however, that foreign calves—though they exhibit whiteness of flesh, and are otherwise saleable—keep from putrefaction a much shorter period than those reared in this country. Buyers, therefore, purchase them with much caution; but, owing to the small number of English calves now exhibited in the metropolitan market, they are compelled to purchase foreigners in order to carry on their business.

Much surprise has been expressed at the apparent backward state of German agriculture, from the continued arrival of sheep from that country in miserably poor condition. The bulk of those received viâ Hamburgh have been disposed of at from 15s. to 16s. each, and upon which the expenses are 2s. 6d. ! It would appear surprising that the German breeders should not be in a position by this time, seeing that they have now open to them a most valuable and a ready-money market, to produce a better commodity. The arrivals of late have shown a degree of poverty on the part of the owners which could hardly be anticipated in this progressive age. The Dutch graziers have wisely, as regards their own interests, succeeded in producing a description of sheep well calculated for general consumption in England; and, judging from past experience, a further improvement in them is pretty certain. France, however, is still very far behind Holland in the production of live stock. For a considerable period, very few beasts, sheep, or pigs reared in France have reached us; and, to meet consumption, importations are still necessary, although breeding stock has from time to time been imported from England in large numbers, and of a stamina well calculated to increase supplies.

The annexed figures show the imports of foreign stock into London since we last wrote:

Beasts	6,026	head.
Sheep	24,323	„
Lambs	153	„
Calves	784	„
Pigs	878	„
Total	32,164	„

IMPORTS AT CORRESPONDING PERIODS.

Oct.	Beasts.	Sheep.	Calves.	Pigs.
1858	4,600	24,145	1,581	553
1857	5,819	24.102	1,998	1,233
1856	8,871	10,502	1,280	895
1855	8,136	21,137	1,358	1,501
1854	6,894	16,328	1,009	1,063
1853	8,190	30,643	1,797	1,585

The above comparison shows that last month we imported a fair average supply of stock, for the time of year.

The total supplies of home and foreign stock exhibited in the Metropolitan Cattle market have been as under:

Beasts	24,892	head.
Cows	526	„
Sheep	116,962	„
Calves	994	„
Pigs	3,062	„

Included in the above are 12,120 shorthorns and crosses from Lincolnshire, Leicestershire, and Northamptonshire; 2,570 of various breeds from other parts of England; 429 Scots and crosses from Scotland; and 1,812 oxen and heifers from Ireland.

COMPARISON OF SUPPLIES.

Oct.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1858	26 910	516	120,300	1,736	2,940
1857	26,833	497	115,409	1,572	2,580
1856	24,941	457	103,870	1,956	3,918
1855	24,666	490	118,578	2,748	3,558
1854	26,456	510	146,048	1,900	3,620
1853	27,327	545	145,400	2,517	3,112

In the month, beef has ranged from 2s. 10d. to 4s. 10d. as general quotations, mutton 3s. to 5s. 4d., veal 3s. 8d. to 5s. 8d., and pork 3s. 4d. to 4s. 8d. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Oct., 1855.					Oct., 1856.				
	s.	d.		s.	d.	s.	d.		s.	d.
Beef, from	3	2	to	5	0	2	10	to	4	10
Mutton	3	4		5	0	3	6		5	2
Veal	3	6		5	4	3	6		5	4
Pork	3	10		5	2	3	6		5	2
	Oct., 1857.					Oct., 1858.				
	s.	d.		s.	d.	s.	d.		d.	d.
Beef, from	3	2	to	5	0	2	8	to	4	10
Mutton	3	4		5	6	2	10		5	0
Veal	3	4		5	4	3	4		5	0
Pork	3	6		5	4	2	10		4	4

Very large supplies of Scotch and country-killed meat have been on offer in Newgate and Leadenhall markets. Nevertheless, a steady business has been transacted, as follows: Beef, from 2s. 10d. to 4s. 4d.; mutton, 3s. 2d. to 4s. 6d.; veal, 4s. to 5s.; pork, 3s. 4d to 5s. per 8lbs. by the carcase.

The present mania on the part of what is termed the "Moscow Company," in Russia, in speculating in tallow, though in the long run it may prove a ruinous operation, has had the effect of enhancing the price of that commodity in London to 60s. per cwt.: hence the value of rough fat has risen to 3s. 3½d. per 8lbs. In the event of these prices being supported, fat stock will no doubt continue to rule at fully its present market rate. Considering that nearly the whole of the foreign tallow now in London and warehoused at St. Petersburgh is in the hands of the company in question, and that the importations from other sources are not likely to increase to any extent, we think that any important decline in the quotations is very doubtful, unless, indeed, the supply of town-made should be much larger during the winter than it now is.

SOUTH LINCOLNSHIRE.

The season is all that could be wished; our pastures, turnips, and coleseed are growing most luxuriantly. We had unsettled weather in September, but now we have a return to July and August, and our farmers are busily taking advantage of it. Cultivation is going on rapidly, and much land will be prepared for wheat in the best style. From the place where this is written no less than four steam cultivators are to be seen daily plying their task, and that most satisfactorily. The lands are remarkably well cultivated, rendering it unnecessary to use the plough; consequently, wheat seeding is going on simultaneously and favourably. This speaks well for steam cultivation; and in this dead level district I have no doubt it will soon become general. At the Long Sutton meeting held last week, three of these cultivators competed for the Fifty Pound Prize given by that Society, and each made most efficient and capital work. The soil was completely broken up to the depth of from eight to ten inches, and greatly pulverized by the process. Smith's cultivators were principally used. Many hundreds of the agriculturists of the district viewed the operations, and one universal approval seemed to characterize the meeting—Chandler's combined application of a vertical windlass to his engine obtaining favour with the judges. We would remark that the Long Sutton Meeting has now become the great meeting of the year, in South Lincolnshire; and the committee deserve great credit for the many novel and interesting implements and machinery they have brought before the public, and shown in work for the information and benefit of the district. The variety of ploughs to be viewed and shown at work in the ploughing match will alone amply repay a visit. Let critics of a high order say what they may about these exhibitions of skill and tact in our workmen, we can point to the stubborn fact and show them that great good has been done and is still doing. We are all busy with our various occupations, and every hand is employed in getting in wheat and harvesting potatoes and mangolds. These come up admirably clean and good. The potatoes are small, but not greatly diseased, and the mangolds are all ripe and ready for graving. The leaves have mostly turned yellow, which I take to be the true sign or indication of ripening and fitness for leading; like apples, they should be ripe before gathering. Our stock in the grazing fields are doing exceedingly well, and much beef and mutton will be thus somewhat unexpectedly made. The sheep put to coleseed and turnips are not doing truly well. The crops are still growing, and the sheep do not eat enough to make them thrive. The abundance of keeping has caused a slight reaction in the market for stock: both cattle and sheep are dearer. We have many offers of coleseed for sale: it is likely to go still cheaper. This crop in this district is generally sold by the fen farmers to the marsh and upland breeders or graziers, so that it is a matter of importance to them whether we have a fine or an untoward Autumn. Our wheat thrashing discovers a worse crop than even our fears indicated; and the quality is very bad, the price proportionately still worse. Oats, beans, and peas are likely to yield a fair crop. The breeders of sheep may congratulate themselves upon having such a plentiful season for their ewes; and an unusual fall of lambs may be anticipated. We never saw the breeding flocks in higher condition. A larger number than usual has been put to the ram, and great provision is now annually made for them. The most remarkable feature of this Autumn in business is the taking up of the mangold crop. The breadth grown is large, and the quantity produced is enormous. Go where you will, everyone is engaged "graving mangolds;" and they are graves! extending for hundreds of yards. This is a somewhat new feature in management, of which I entertain a very high opinion as likely to form a new era in the Spring provision for our stock, by which far greater numbers will be safely provided for, and this may ultimately lead to an extended cultivation of root in preference to corn crops.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

AXMINSTER FAIR.—The supply of sheep was about the average, though rather under the supply of the previous October fair. Considerable business was done, and prices may be quoted for horn ewes from 38s. to 45s.; Down ewes from 32s. to 38s.; horn lambs from 20s. to 30s.; Down lambs from 22s. to 30s.; fat sheep, 6½d. to 7d. per lb. The bullock fair was well supplied. Fat beasts, of which there was a tolerable show, from 10s. to 11s. 6d. per score. Cows and calves were scarce, at prices from £11 to £15. Barreners from 6s. to 7s. per score. Heifers from £5 to £8 per head. There was a good supply of pigs. Slips, 10s. to 30s. The horse fair was very full.

BERRIEW FAIR was remarkably well supplied well supplied with stock of all descriptions, and was well attended with buyers. Some very fine bullocks were shown, and excellent prices realized, the demand for all cattle being very brisk. The show of pigs and sheep was good, and many sales were effected at excellent prices. Horses in fair demand.

CARLISLE FAIR.—There was a poor show of milk and calving cows, and the prices asked ranged from £9 to £12, and in one instance £16 was got for a good shorthorned cow in-calf; better half of these were not sold. Shorthorned heifers and bullocks were an average show, and commanded some attention during the latter part of the day. Ayrshire cows met a dull sale. Irish cattle were plentiful, and on the whole met a good demand. They went off very slow during the morning, and it was not till late in the afternoon that anything like a sale was effected. A few sales were made for Highland heifers, but for stirks of that breed business was stagnant the whole of the day. On the whole the market was an average one, considering the unsettled state of the markets. The prices obtained ranged as follows: Galloway heifers and bullocks, £5 10s. to £9 10s.; milk and calving cows, £8 to £12; Irish, £5 to £8 15s.; Highlanders, £5 10s. to £6 10s.; shorthorns, £6 10s. to £9 15s. Half-bred and Cheviot lambs attracted most buyers, but crosses and Cheviot ewes were not so easily disposed of. The Leicester tups left the market unsold. Only two or three good draught horses on offer, while, for saddle or harness, scarcely a good animal was to be seen. Ponies scarcely inquired for. The supply of pigs was the largest that has been offered here for some months past. There were eighty cart loads, and brought prices ranging from 14s. to 24s. each. A drove of Irish shots were also offered for sale, but they met a poor demand. The demand for young pigs was good, and a total clearance nearly effected.

DALKEITH FAIR was rather short in point of number compared with last year, and the quality generally was not so good, particularly the three year olds. The two-year-olds and six quarters, however, were in rather better condition. The buyers were numerous, and business commenced at an early hour, and the better class of stock of all ages met with a ready sale. The prices obtained for the better class of stock equal those of last year; while on the three-year-old good-conditioned stock the prices were 5 per cent., on the inferior kinds somewhere about 2½, and upon the stirks 5 per cent. higher than those obtained at Jedburgh and Kelso. At the close few beasts remained unsold. The great demand for shorthorned to-day is supposed to have arisen from the recent timely rains, which are expected to improve the turnip-crop. The Irish cattle were very numerous, especially two-year-olds and stirks. The three-year-olds were deficient both in quantity and quality. Beasts rising a year and a half-year old brought about £11, two-year-olds from £11 to £12 10s., and the better class of three-year-olds from £13 to £15. At the close of this market few good-conditioned beasts were left unsold. It was considered by the holders of this stock that this was the best market during the latter part of this season. The horse-market was crowded with good draught-horses, fillies, and colts, but there were few good saddle and harness-horses. The demand for draughts, although there was a large number of dealers from all parts of the country, was not what was expected, which caused trade to be stiff in this department; and although Mr. Edgley of Gilmerton, Mr. Yule of Glasgow, Mr. Given of Glasgow, as well as Mr. James Henderson of Edinburgh, Messrs. Wilson and Gray, and also Mr. Burns of Edinburgh, did business in their own way, it was admited that prices were a shade lower than at recent markets. Mr. Thomas Hamilton, Haddington, bought several young beasts from £30 to £35.

DEVIZES FAIR.—There was about an average supply, and sheep of all kinds, except ewes, sold well, at fully the prices at Weyhill. Lambs were in good demand, and sold at from 20s. to 35s. a-head; ewes sold at from 25s. to 41s.; good wethers were inquired after; there were but few in the fair, and they sold well at from 34s. to 44s. Prime cattle sold freely. There were a good many lambs. Some very prime colts sold extremely well.

GLOUCESTER MONTHLY MARKET.—The number of beasts was nearly double that at the last market, and their condition was greatly improved. The supply of sheep was rather large, but not of first-rate quality. There was a brisk trade, at the following quotations:—Beef, from 6½d. to 7d; mutton, from 7d. to 7½d. per lb. At these prices the market was nearly cleared.

HEREFORD FAIR.—Fat beasts were scarce, and realized 7d. per lb. without difficulty; and the aggregate price of prime horned stock was 5 per cent. higher on the second than the first day. All the stock, with the exception of a few lots of inferior beasts, went off very quickly. The trade in sheep was brisk, and the supply good. Fat wethers maintained their full value of 7d. per lb. Ewes about 6d. per stone lower. There were a great number of horses, but very few really good hacks. All kinds of horseflesh seems to have deteriorated in value during the last six months, and young cart-horses and colts were not worth so much by 25 per cent. as they were twelve months ago. In pigs there was not much doing; but fat porkers were worth 5s. to 5s. 6d. per stone.

KELSO PENNYMUIR FAIR.—There was a small show of Cheviot ewes, but a good one of young wedders. Three-year-old Cheviot wedders brought from 24s. to 29s. 3d., two-year-old from 23s. to 28s. 9d. This description of stock was down about 2s. from last year's prices. Cheviot ewes brought from 20s. to 26s., being from 1s. 6d. to 2s. 6d. up from last year. Sales were slowly effected, but nearly the whole stock was disposed of.

LANARK FAIR was a very dull one. There was a good show of horses, but few cattle or sheep. The average prices of horses ranged from 25*l.* to 35*l.* Few of either sheep or cattle changed hands; cows at the calving brought from 8*l.* to 11*l.*, but there seemed to be no demand for stock cattle.

LEOMINSTER FAIR was well attended. There was a capital supply of stock. Owners appeared determined to maintain high prices, purchasers were therefore very shy, consequently few sales were effected.

MANSFIELD FAIR.—There was a large number of horses shown, but principally inferior animals; what few good ones there were sold readily at from 60*l.* to 70*l.* each. Good useful cart horses were also in demand, and readily changed hands at prices varying from 30*l.* to 50*l.* A large number of two-year-old colts were shown, the dealers asking from 15*l.* to 27*l.* The supply of cattle was more limited, and principally inferior stock. Good milch cows fetched a ready sale at about 26*l.*, and in-calf heifers 18*l.* Fresh barren also sold well. Inferior sorts were very bad to quit. The show of sheep was very moderate, and at about average prices.

MARKET HARBOROUGH FAIR.—The show of horses was exceedingly large, especially of inferior quality, and the sale for these was very slow. Many good horses had been sold for the two or three days previous, and realized more money than at the last fair. The show of fat beef was less than last year, consequently it realized higher prices. In other beasts a good business was done, but the quantity was not so large as in previous years. The same may be said of sheep, of which the numbers were shorter than last year.

MITCHELL FAIR.—About the usual number of sheep were penned, and the sale for store ewes was pretty good; wethers also sold freely, and fetched about 6¼d. per lb.; at the close of the day very few sheep remained unsold. For store bullocks the sale was not brisk; nevertheless, a good many oxen and steers changed hands. Good beef fetched from £3 to 3 guineas; the effect, however, of the recent arrivals of foreign beef was evident, fewer of the western butchers being present than is usually the case.

MUIR OF ORD MARKET.—There was little demand, and any desire to purchase on the part of buyers was for lots available for ready sale to the butcher. There were few lots, however, of a superior description; and except some blackfaced wedders the show altogether was inferior. The unsatisfactory state of the turnip crop throughout the country necessarily influences the character of our northern sheep markets.

NORWICH ST. FAITH'S FAIR. — At this important fair the number of beasts was smaller than has been known for years. Of Scots about 800, the quality and condition of the different droves were very prime; of Shorthorns and Irish less than 400, which were of a second-class description, and commanded but little attention. The weather being unusually fine, and the buyers for the Scots tolerably numerous, a fair amount of business was transacted at fully 6s. 6d. per stone for the best lots; second rates 5s. 6d. to 6s., leaving about one-fourth unsold. Shorthorns 5s. to 5s. 6d.; a dull sale, and half unsold. Irish none worth notice. The high prices prevented many graziers from purchasing, giving the preference to Norwich Hill, which may now be considered one of the best markets in England. Although both the breeders and dealers admitted the prices were high; still we fear at the close there will be little if any profit realized. We are glad to be able to state keep was never known to be more plentiful, the turnips and beet-root improving daily. In the horse fair very little was doing; scarcely a first-class animal offered. The show on the Fair Stand on Thursday very small, and the day throughout being wet prevented any business being done.

PENNYMUIR FAIR.—The stock was in excellent condition, but was below an average in numbers. The demand was good, and prices were from 1s. 6d. to 2s. up for ewes, and about 2s. to 3s. below the same fair last year. Cheviot ewes 22s. to 25s. 6d., wedders 26s. to 29s., dinmonts 23s. 6d. to 25s.

ROSS FAIR was well supplied with store stock, but there was a remarkable scarcity of fat stock. Steers and fresh barrens were in demand, and sold readily. Fat beef and mutton was worth 7d., and met a brisk sale. The horse fair showed many good animals, but the sale was a dull one.

SHERBORNE FAIR.—Fat stock was plentiful, but there was a reluctance on the part of purchasers to give former prices, consequently there was a drug. Sheep were plentiful, and sold well. Lambs also realized good prices. Other stock sold proportionately well.

STRATFORD-ON-AVON FAIR.—There were about 800 sheep penned, but buyers were few and business slack, in consequence of the high prices asked. Of stock there was a very short supply of beef, which we may quote, with mutton, at 6½d. to 7½d. per lb. Pigs, both porkets and bacon, brought from 9s. to 10s. per score, according to quality.

WELLOW FAIR was well supplied and well attended by buyers, and in every particular maintained its high reputation for the excellence of the stock penned. The sale was brisk, lambs fetching from 22s. to 40s., and ewes sold readily at from 32s. to 55s. per head.

WEYHILL FAIR.—There were 165,000 sheep penned on MONDAY. The *Hampshshire Chronicle* computes the number at 150,000. The statement published by a daily cotemporary that "between 300,000 and 400,000 hurdled in for sale," is not correct. The greatest number ever exhibited at Weyhill was in 1846, when over 200,000 were penned. Last year there were only 155,360. There were this year but very few Dorsets (not worth quoting), and hardly any Somersets. The following are the prices obtained, as far as could be ascertained by a competent authority: Of the Hampshire downs lambs appeared to be most sought after; some pens were so fine that they fetched from 46s. up to 54s. per sheep, next in quality making from 40s. to 45s., inferior 34s. to 38s., poorer from 30s. to 32s. Ewes in lamb, best from 48s. to 56s., second-rate in size, &c., 42s. to 46s., smaller 40s. to 42s., inferior 30s. to 36s.; tegs, best from 50s. to 52s., next in quality 46s. to 48s., small 42s. to 44s.; wethers, fat from 48s. up to 50s., second-rate 32s. to 40s.; rams for sale or letting for the season at from 10*l.* up to £40. Sussex Downs were also very fine, some making nearly as much as the Hampshire breeds; some fine pens of lambs making from 40s. to 48s. each, ewes in lamb from 42s. to 46s., wethers 36s. to 44s., tegs 34s. to 42s. Wiltshire ewes, at from 38s. to 44s.; lambs, 30s. to 38s.; tegs, 30s. to 36s.; wethers, 32s. to 40s. Dorsets were sold at the same prices as at Appleshaw fair. Poorer sheep of every breed were sold at less money than the above-named figures. The best flocks were sold at from 3s. to 5s. per sheep more money than the same description and breed sold for in 1858. TUESDAY: There was an immense assemblage of persons interested in cattle. Business was active for superior qualities of stock, and the best description of horses and cart colts readily found buyers, the prices of which were as undermentioned: Horses for riding and road and cover hacks sold at from 25 to 36 guineas; young horses of high blood for the field (hunting) made from 40 to 60 guineas; weight-carrying cobs, 20 to 35 guineas; fashionable young horses for double harness, 48 to 55 guineas; well made strong young horses for road and machine work varied in price from 25 to 40 guineas. Cart horses, young horses, well-shaped and easy walkers, were selected at from 38 to 48 guineas, and destined for London work. Cart colts ranged in prices from 25 to 35 guineas, and yearlings 12 to 15 guineas. Welsh ponies fetched from 6*l.* to 10*l.* each, and Hampshire Forest colts, 8*l.* to 12*l.* In the stock field well-bred cows, full milch, made from 17*l.* to 20*l.*; ditto, plain bred ditto, 12*l.* to 14*l.* Alderney cows, 10*l.* to 14*l.* Good steers for stalling, 11*l.* to 16*l.* Fat bullocks and ditto heifers made 17*l.* to 22*l.* Yoke oxen for farming work made from 36*l.* to 40*l.* per pair. The Welsh cattle droves sold off slowly, steers making 10*l.*, heifers 7*l.* to 9*l.*, and cows, calving down or in full milk, £9 to £12. WEDNESDAY: The number of pockets of hops pitched this year exceeds that of last fair, and will nearly approach 5,000. London was largely represented by hop-factors and merchants, and he chief brewers sent agents. At the commencement of the fair very few sales were effected. Hop-growers asked an advance on recent prices made at country markets, &c., and buyers being unprepared for this step on the part of hop-planters, business began slowly. Large growths were purchased on speculation, and will be retailed out. Sussex supplied some well-grown and well-preserved hops. Kent brought pockets of her choicest gatherings, which met a good inquiry. Mid and East Kent obtained the highest price. Wealds commanded a sale at late prices. Worcester and country hops were in request, although prices asked prevented active business. Farnhams, as usual, formed the chief attraction of the hop fair, and the eager demand for this description of hops caused good prices to be made. The samples were in excellent condition. The annexed were the prices made: Sussex, fine growth from choice plantations, made £3 to £3 10s. per cwt., and many growers held over rather than make abatement; Kent hops, Wealds, sold at £3 10s. to £3 18s., and £4 per cwt., Mid and East Kents realizing £4 to £4 10s., and £5 per cwt.; Worcester and country pickings varied in price from £3 12s. to £4; Farnhams fetched £5 18s. to £6 6s., and primest samples £7 per cwt. In the aggregate a large amount of business was transacted, although there was no activity displayed, as business was principally in the purchasing of whole growths, and which will be subsequently submitted for sale in lesser proportions; in fact, the fair cannot be said to be more than formally opened, and hops are still being brought up. The chief discussion among hop-growers, factors, &c., was in reference to duty to be paid on hops of this year's growth: that it will reach £280,000 is now settled without doubt, and competent authorities compute the duty to be paid to the Government at £285,000, and several bets were laid at odds that the duty will come up to £290,000.

WOODBRIDGE FAIR.—The number of beasts exceeded that of the previous year, particularly in polled Scots, which were brought forward in great numbers, owing to the short crop of turnips in Scotland, and the general large amount of all kinds of feed in this district. Messrs. Fenner, Strachan, and Little, had the largest stands of Scots, for the very primest of which £12 to £14 per head was asked. Mr. Munning's Shorthorns were very fresh in condition, and £22 each was demanded. Sheep few in number, as were also colts and horses.

WOOLER FAIR.—In the sheep market there was under an average show, but business was brisk, and almost every lot was cleared off the ground early. Prices ranged as follows: Leicester dinmonts 40s. to 46s., half-bred ditto 34s. to 38s.; Cheviot wedders 25s. to 32s.; Leicester ewes 38s. to 42s., half-bred ewes 32s. to 36s., Cheviot ewes 18s. to 24s. Over 1,000 head of cattle were shown, and sold readily at prices which astonished and intimidated many intending buyers. Two and a-half year olds brought from £12 to £16, one and a-half year olds from £6 10s. to £9, six month calves from £3 10s. to £5. Cows were not numerous, but sold readily at prices ranging from £10 to £18. There were not many first-class horses shown, and prices did not appear to suit vendors. The number of pigs was below an average. The prices ranged from 15s. to £2 a-head.

WORKSOP FAIR.—The supply of sheep, chiefly ewes, was very large. But few lambs were shown. Useful sheep sold from 35s. to 42s. There was a very fair show of beasts, scarcely any fat, which were slow of sale. The horses were more numerous than usual, but nothing first-rate. Although the fair was immensely stocked, not much business was done.

IRISH FAIRS.—BALLIBAY was the best business fair which has taken place for some time in Co. Monaghan. Beef scarce and in demand; top price, 60s. per cwt. Dry cattle and springers were in excellent demand; two-year-old store bullocks fetched from £7 to £8 per head; three-year-old heifers from £7 to £11; yearlings, £5 to £8. Anything fat in the sheep market brought full prices, and nothing in condition left the fair unsold. Bacon and pork had a downward tendency, 45s. per cwt. being the average price for best bacon. Young horses fetched from £30 to £60. BALLINAKILL.—There was a large supply of stock, principally store cattle, and store bullocks were particularly in demand. DUNAMONA was well supplied with cattle, and anything in condition realized good prices.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

October has passed away, leaving a record of the greatest heat and severest cold known in that month for a long period. Vegetation continued in vigorous progress up to the 21st, when four days of hard winter suddenly came upon us, cutting up the young growth of evergreens, and bringing on a rapid fall of the leaves. The frost has, however, done service as a preparation for seeding the ground where the soil was wet and heavy, and thus may serve to hasten on the autumnal sowings. These have already commenced in the lighter soils; but the scarcity of fine samples for this purpose was never more severely felt, occasioning a large demand from Scotland, where they are more plentiful, and thus the Scotch farmers, who have suffered from drought, will find an unexpected benefit. The more the English crop is thrashed, the less satisfactory does it prove, both in quality and yield; and were it not for the stocks of old on hand, nothing could prevent a material rise, as our neighbours, the French, are this season in much the same state as ourselves, and have quite ceased sending us important supplies, in consequence of the steady advance in their markets. Yet the general arrivals of foreign, both from the Black Sea and Baltic, have been more than sufficient for present wants, and therefore have checked the upward tendency of prices, though all these shipments have lost money where sales have taken place. The advance of the month can scarcely be said to exceed 1s. per qr., and even this is not fully apparent in the averages; but it must be remembered that since the damp and rainy weather, the condition has been seriously going back, perhaps fully 2s. per qr.; so that a small rise, with a much deteriorated quality, looks well for the future, when the frost shall have dried the grain, and foreign shipments shall be less liberal. As there has been an advance in many foreign markets, irrespectively of the state of prices in Great Britain, and as even America, which began to be feared as a large exporting country, shows a great diminution in the receipts at New York this year as compared with last, even to the extent of 1,800,000 barrels of flour, the case is plain that the Western farmers are dissatisfied with present rates, and do not mean to send liberally, except under monetary pressure or the inducement of better prices. Neapolitan wants and the political excitement throughout Italy serve to keep up the Mediterranean markets; and Spain, which lately was calculating on some export trade as the consequence of a better crop, still keeps up a range of prices, which quite renders such a thing improbable. It is, therefore, rather in our own stocks, both of foreign and of old English, that a hindrance is at present found to any important advance; but as these are pretty well balanced by the great increase of population as well as of commerce, we expect the turn of the year will open brighter upon farmers, and that there is some prospect of a yet earlier improvement.

The following quotations, as received from foreign markets, will show the relative state of wheat prices. The French markets stand thus:—Nantes top price 43s., Toulon 46s., Paris 46s. 6d. per qr. In Belgium, Louvain new was 46s., old 48s., red at Antwerp 47s. At Amsterdam prices ruled 35s.

to 54s., there being much of low quality. At Hambro', Holstein 63lbs. wheat was worth 46s., Marks to 47s., Wahren red 48s., Konigsberg and Berlin fine mixed 48s. to 49s., Danzic to 50s., Stettin red 43s., Petersburg, Saxonsky 42s. per qr. Odessa ranged from 35s. to 43s., and over for the best samples. Taganrog and Berdianski for soft wheat about 38s. At Smyrna as high as 42s. was paid. In Alexandria the inferior Behara brought 31s. 6d. In Naples red wheat was worth 47s. In Spain, the top quotations at Santander was 55s.; at Barcelona 66s. The New York market still quoted equal to 50s. per qr. for white Kentucky, weighing 62lbs. per bush.; and in Chicago itself the light spring wheat was worth 27s. per qr. of 480lbs.

The first Monday in London opened on a light foreign supply of wheat, and only an average one of home-growth. There were but few additions from Kent and Essex in the course of the morning, and these samples were unusually bad in condition. The few parcels of fine on show brought fully the former quotations, all inferior sorts being difficult to quit at the same money. Millers were, indeed, obliged to seek the fine quality at the foreign stands, where heavy and sweet descriptions obtained fully the previous Monday's prices. The country advices this week were very nearly agreed. Spalding, Norwich, and Bristol, with a few other places, quoted an advance of 1s.; but Louth was dull. At Liverpool an advance was attempted on Tuesday, which did not succeed, and the closing market was unaltered, London only being firm.

The second Monday had better foreign supplies, with about the usual qnantity of home-growth, the near counties again sending up but few samples, and those inferior. There being a fair inquiry for dry English, the lots of such that could be found were taken off at 1s. per qr. improvement, and there was a retail inquiry for a good foreign at nearly an equal advance, but bad-conditioned English, as well as light, were not dearer, but slow to sell. The same agreement as noted last week ensued in the country markets, on this occasion there being a general advance of 1s. per qr. Gainsborough and Melton Mowbray advanced 1s. to 2s. per qr.; but Hull, Leeds, and Newark, were only rather dearer. Liverpool succeeded in establishing a rise, on Tuesday, of 4d. per cental on wheat; but Friday only confirmed previous rates.

The third Monday opened on a heavy arrival from abroad, though the home-supplies were only moderate. Kent and Essex in the course of the morning sent up but very few samples, and those poor specimens of the last growth. There were large seed orders on hand, which for want of quality could not be executed, though buyers were prepared to pay full rates for warranted sorts. Prices were with difficulty maintained, and the foreign trade was subdued in tone, in consequence of the plenty offering only picked parcels going off in retail. There was again very little difference from the London report in the state of the country markets, but Bristol, Gloucester, and Daventry showed more firmness than other places. Liverpool, though well attended on Tuesday, was rather worse than better, and on Friday there was a very languid trade.

The fourth Monday had a moderate English and large foreign arrival. Essex and Kent this morning sent up a rather better supply, of improved quality and condition. Still millers, not overlooking the abundance of good foreign, were but slow buyers at the previous rates; inferior sorts not being placed at the close of the day. Throughout the country this week the markets were unaltered, including Liverpool; and where lower prices were offered they were resisted by farmers.

The flour trade throughout the first four Mondays of the month has very little altered. Notwithstanding the great falling off in foreign imports, more especially from France, the advance on Norfolks has only been 1s. per sack, occurring on the third Monday; but with better supplies on the following Monday the upward movement ceased. The cessation of French imports is not to be wondered at, as almost every shipment produced a heavy loss. Fine American would no doubt bring good prices; but the United States markets seem to preclude the expectation of seeing first quality in London, as the best Genessee and Missouri are worth 7 dols. per brl. at New York, or 41s. 6d. per sack of 280lbs. free on board—to which must be added freight duty, factorage, and expense; while our own highest quotation is 43s. per sack for town-made. The better descriptions of French are worth about 36s. 6d. per sack at Paris, and will scarcely bring that price, duty paid, here. The four weeks' imports into London have been 32,826 qrs. English wheat, 71,906 sacks flour, with 65,205 qrs. foreign wheat, and only 600 sacks flour—against 28,517 qrs. English wheat, 66,945 sacks country flour, and 49,431 qrs. foreign wheat, 4,402 sacks 2,308 brls. foreign flour in the same time last year; the present deficiency in flour at London has, therefore, been more than made up in wheat. The imports into the kingdom for Sept. last were 180,899 qrs. wheat, 120,736 cwt. flour; in Sept., 1858, they were 306,812 qrs. wheat, and 196,184 cwt. flour.

The barley trade during the first four weeks of October, with increasing receipts, both English and foreign, has been very steady as to prices, or rather improved, more especially for the best and lowest sorts. Malting qualities of English growth have come very sparingly to the London market, but there have been fair supplies from Scotland, and the Saale qualities from Hambro' have been well approved, some recent shipments of the latter being very fine, for which 40s. per qr. has been demanded by factors; still it is found high prices make a slow trade, and there is a great deal of second-rate malt on hand difficult to quit. Middling qualities of English growth have all along been very dull, with uncertain value, but the low rates of Odessa descriptions have made ready sales; in these latter there seems likely to be no reduction, and the scarcity of the best malting will probably command high prices till the end of the season. The imports into London for four weeks were 22,883 qrs. British and 35,993 qrs. foreign—against 13,220 qrs. British, and 67,098 qrs. foreign in October, 1858. The imports into the kingdom last September were 127,857 qrs.—against 105,744 qrs. in September, 1858.

The malt trade throughout the month has been steady in price for the finest qualities, both old and new; but inferior sorts have given way about 2s. per qr.

Though there has been a considerable reduction in the import of foreign oats, as compared with last month, yet they have continued sufficiently free to embarrass the market. The first Monday having the least supply, this relief brought a rise of 6d. per qr.; but as the second Monday again showed plenty, the improvement was lost on that day, and there has been a heaviness in the trade ever since, though there is a good opinion as to ultimate prices, as Russian ports must soon close by frost, and no other places are feared as to their stocks. The probability seems that with the approach of winter, especially if it should prove severe, there will be some advance. The last quarter's arrivals into London only show 33,538 qrs. from Ireland, while the foreign were 384,051 qrs. The four weeks' receipts were 8,067 qrs. English, 2,347 qrs. Scotch, 13,556 qrs. Irish, and 156,213 qrs. foreign—against 3,802 qrs. English, 3,583 qrs. Scotch, 14,309 qrs. Irish, and 243,100 qrs. foreign in October, 1858. The total imports into the kingdom last September were 315,857 qrs.

The bean trade has been very dull, new English having given way 1s. to 2s. per qr. in the course of the four weeks, and old have sold slowly and somewhat in buyer's favour. This grain being still relatively high may probably farther decline, though Egyptian shipments do not seem likely to be large, and Liverpool has lately quoted higher rates. The four weeks' imports into London were 4,059 qrs. English, 4,803 qrs. foreign—against 3,614 qrs. English, 12,434 qrs. foreign in October, 1858; the decrease in foreign receipts is, therefore, considerable. The imports into the kingdom for Sept. last were 27,108 qrs.

Peas, too, have been a very heavy trade. Maples, though down in price, as compared with the extravagant rates paid before the new crop was gathered, still are dear, viz., 40s. to 42s.; duns, though moderate, have not been in active request, barley-meal and maize being cheaper; and boilers, on the fourth Monday, lost 2s. per qr. value, in consequence of a very heavy foreign arrival, though a sharp frost was then experienced; on the return of hard weather they may probably recover, more especially as farther contracts may be out. The imports into London for the four weeks were 5,044 qrs. English, 8,501 qrs. foreign, most of which arrived on the fourth Monday—against 2,144 qrs. English, 10,029 qrs. foreign in October, 1858. The total imports into the kingdom for September last were 15,061 qrs.

The linseed trade has continued remarkably steady, with good arrivals, prices having scarcely yielded 1s. per qr., and the prices made of fat beasts have enabled graziers to take off the cake on full terms.

The trade in cloverseed has scarcely begun, dealers here having waited for a more favourable state of the foreign markets, and hitherto they have entirely succeeded, as fine French red has been offering at Bordeaux at 47s. per cwt. free on board; American, at New York, at 42s. per cwt. These rates seem low enough to carry buyers safely through the season, as the yield of our own crop is doubtful; and should it prove large, it must be generally discoloured by the prevalence of rain in the harvesting. White German has been held very high, say about 84s. per cwt. at Hambro'. Trefoil has been neglected. Winter tares, abundant all through the season, now hang on hand, offering in vain at lower rates, say 7s. per bush. Canary has remained low priced, and only in moderate demand. Hempseed, mustardseed, and the sorts used in confectionery have very little altered.

CURRENCY PER IMPERIAL MEASURE.

				Shillingspe	Quarter.
Wheat, Essex and Kent, white new	37 to	47	old	39 to	48
,, red new	36	43	old	38	45
Norfolk, Linc., and Yorks., red				37	46
Barley, malting, new	— to	37	Chevalier, new	37	43
Grinding	26	27	Distilling	28	30
Malt, Essex, Norfolk, and Suffolk	49 to	57	fine	60	67
Kingston. Ware, and town made	49	57	,,	60	67
Brown	48	49		—	—
Rye new	—	—		30	31
Oats, English, feed	20	25	Potato	25	27
Scotch, feed	21	26	Potato	25	28
Irish, feed, white	20	23	fine	24	26
Ditto, black	20	22	,,	—	24
Beans, Mazagan	35	41	Ticks	36	41
Harrow	37	45	Pigeon	42	48
Peas, new, white, boilers	36	40	Maple 38 40.. Grey	34	36
Flour, per sack of 280lbs., Town, Households 37s., fine				41	43
Country..nominal	30	32	Households	31	35
Norfolk and Suffolk, ex-ship				30	31

FOREIGN GRAIN.

				Shillings per	Quarter.
Wheat, Dantzic, mixed	48	—	high do. — 50 extra	—	53
Konigsberg	48	50	,, — —	—	—
Rostock	50	—	fine 53 old 54	—	—
American, white	42	48	red 42 46	—	—
Pomera., Meckbg., & Uckermrk, red	47	49		—	—
Silesian, red	41	46	white	46	48
Danish and Holstein				46	47
Russian, hard	44	45	French 40 46 white	44	47
Barley, grinding	23	28	Distilling	28	30
Oats, Dutch, brew, and Polands	22	26	Feed	19	23
Danish and Swedish, feed	20	23	Stralsund	19	24
Russian				18	21
Beans, Friesland and Holstein				37	42
Konigsberg	34	40	Egyptian	35	37
Peas, feeding	35	36	fine boilers	34	38
Indian Corn, white	30	31	yellow	29	31
Flour, per sack French	29	35	Spanish..none	—	—
American, per barrel, sour	22	26	sweet ,,	—	—

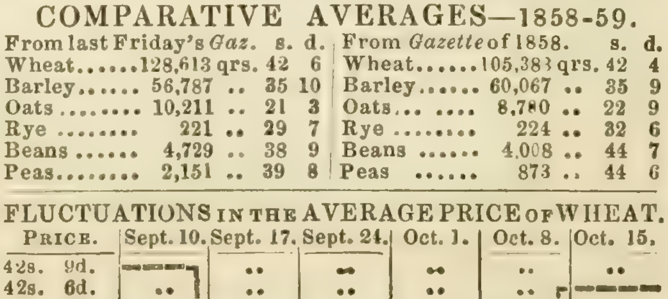
IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat. s.	d.	Barley. s.	d.	Oats. s.	d.	Rye. s.	d.	Beans s.	d.	Peas. s.	d.
Sept. 10, 1859	42	9	33	9	23	0	31	6	41	3	37	10
Sept. 17, 1859	41	11	35	3	21	7	30	6	40	4	38	8
Sept. 24, 1859	41	10	35	5	21	7	30	6	40	4	38	5
Oct. 1, 1859	42	1	35	9	20	10	29	9	39	7	38	5
Oct. 8, 1859	42	5	35	8	21	7	29	10	39	3	38	0
Oct. 15, 1859	42	6	35	10	21	3	29	7	38	9	39	8
Aggregate average	42	3	35	3	21	7	30	3	39	11	38	6
Same time last year	43	9	35	11	24	7	33	2	45	4	44	5

COMPARATIVE AVERAGES—1858-59.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1858.		s.	d.
Wheat	128,613 qrs.	42	6	Wheat	105,383 qrs.	42	4
Barley	56,787 ..	35	10	Barley	60,067 ..	35	9
Oats	10,211 ..	21	3	Oats	8,780 ..	22	9
Rye	221 ..	29	7	Rye	224 ..	32	6
Beans	4,729 ..	38	9	Beans	4,008 ..	44	7
Peas	2,151 ..	39	8	Peas	873 ..	44	6

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

BRITISH SEEDS.

Mustardseed, per bush., new 12s. to 16s., brown	12s. to 16s.
Coriander, per cwt.	14s. to 16s.
Canary, per qr.	58s. to 62s.
Trefoil, new	24s. to 26s.
Tares, Winter, new, per bushel	7s. to 7s. 6d.
Linseed, per qr., sowing —s. to 60s.. crushing	54s. to 58s.
Linseed Cakes, per ton	£9 10s. to £10 10s.
Rapeseed, per qr.	54s. to 58s.
Rape Cake, per ton	£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to —s. .... white	—s. to —s.
Trefoil,	—s. to —s.
Hempseed, small, 33s. per qr. .... Dutch	—s. to 38s.
Coriander, per cwt.	16s. to 18s.
Carraway ,,	36s. to —s.
Linseed, per qr., Baltic 52s. to 56s. .... Bombay	58s. to 60s.
Linseed Cake, per ton	£9 10s. to £11 0s.
Rapeseed, Dutch	54s. to 58s.
Rape Cake, per ton	£5 0s. to £6 0s.

HOP MARKET.

BOROUGH, Monday, Oct. 24.—Our market has been somewhat inactive during the past week, and prices, except for the finer descriptions, may be written a shade lower.

Mid and East Kents	84s., 112s., 147s.
Wealds	60s., 68s., 76s.
Sussex	58s., 62s., 65s.

Mease and Wild.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, Monday, Oct. 24th.—Since our last report the arrivals of Potatoes, coastwise and by railway, have been seasonably extensive, and in fair condition. On the whole, a steady business is doing, as follows:—

Essex and Kent	80s. to 110s.	per ton.
York Regents	70s. to 100s.	,,
Scotch	70s. to 90s.	,,
Lincolns	90s. to 100s.	,,

COUNTRY POTATO MARKETS.—York, Oct. 15: Potatoes sell at 5d. to 5½d. per peck, and 1s. 8d. to 1s. 10d. per bushel. Leeds, Oct. 18: The supply of Potatoes has again been limited, and prices on the advance, 7½d. to 9d. wholesale, and 9d. to 15d. retail per 21lbs. Richmond, Oct. 15: Potatoes, 2s. per bushel. Knaresbro', Oct. 19.: Potatoes, 7d. to 8d. per 21lbs. Malton, Oct. 15: Prices had an upward tendency. Manchester, Oct. 18: Potatoes 5s. to 10s. 6d. per 252lbs.

ENGLISH BUTTER MARKET.

LONDON, Monday, Oct. 24.—The present cold weather imparts a firmness to our market, and fresh made butter is the turn dearer than it was last week.

Dorset, fine	per cwt.	120s. to 124s.
Middling	,,	98s. to 104s.
Devon	,,	112s. to 114s.
Fresh	per doz. lbs.	13s. to 16s.

CARMARTHEN BUTTER MARKET, (Saturday last.) —A remarkably small supply of Butter to market this day, in consequence of which, and a fall of snow, with severe frost, prices hardened up to 11½d. to 11¾d., which the farmers freely obtained. We do not look for any reaction in price this season; and a continuation of this weather will soon drive our market up to 112s. per cwt.

CORK BUTTER EXCHANGE, (Saturday last.)—The supplies for the week were fair, averaging 2,000 firkins a day, being about 1,000 under last week. The demand was very brisk, and prices advanced from 2s. to 6s. during the week. Firsts, 110s. on Monday, went up to 112s. on Wednesday, and to 114s. on Friday; seconds advanced from 146s. to 112s.; thirds, from 95s. to 97s.; and fourths, from 85s. to 87s., during the week. The market is still firm, and prices are likely to be steady. Some holders are getting into stock.

HEREFORD.—Good Gloucester cheese, both double and single, was scarce; the price ruled from 6d. to 7d. per lb., according to quality. Cheddars were largely on offer, from 6d. to 6½ d. per lb.

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, Monday, Oct. 24.—There is rather more business doing in English wool for export purposes, at full prices, but the transactions for home use have continued on a very moderate scale. Holders generally are firm, and the favourable result of the public sales at Liverpool is likely to impart a steadier tone to the market, which, for the most part, is fairly supplied.

Per pack of 240lbs.				
Fleeces—Southdown Hogs	£18	10 to	£19	10
Do. Half-bred Hogs	18	10	19	0
Do. Kent	17	10	18	0
Do. Southdown Ewes and Wethers	17	0	17	10
Do. Leicester do.	16	0	17	0
Sorts—Clothing, picklock	18	10	19	0
Do. Prime and picklock	17	10	18	0
Do. Choice	16	0	17	0
Do. Super	14	0	15	0
Do. Combing—Wether matching	20	0	21	0
Do. Picklock	17	0	18	0
Do. Common	14	10	15	10
Do. Hog matching	23	0	24	0
Do. Picklock matching	17	10	18	10
Do. Super do.	14	10	15	10

LEEDS (English and Foreign Wool Markets), Oct. 21.—There is an undiminished consumption of wool in the worsted and woollen mills of the West Riding; and there is consequently great confidence in the present prices being fully maintained, although the demand in the warehouses is not characterized by any remarkable activity. For low wool there is a good demand, and some sorts are not easily met with.

LIVERPOOL WOOL MARKET, Oct. 22.

	s.	d.	s.	d.
Laid Highland Wool per 24lbs.	12	6 to	13	0
White Highland do	15	6	18	0
Laid Crossed do.. unwashed	15	6	16	0
Do. do.. washed	16	0	18	9
Laid Cheviot do.. unwashed	17	0	19	6
Do. do.. washed	21	0	26	0
White Cheviot do.. washed	34	0	40	0

FOREIGN AND COLONIAL WOOL MARKET.

	Per lb.	s.	d.	s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect	3	4 to	4	6
	Prima	2	4	3	0
	Secunda	2	0	2	4
	Tertia	1	8	1	10
Colonial:—Sydney—	Lambs	1	10	2	2½
	Scoured do.	1	2	2	11½
	Unwashed	0	7½	1	4
	Locks and Pieces	0	10½	1	10½
	Slipe and Skin	0	11	1	10
Port Philip—	Lambs	1	5	2	4
	Scoured do.	1	2	2	9½
	Unwashed	0	6	1	7
	Locks and Pieces	0	8	1	10½
S. Australian—	Lambs	1	8	1	9½
	Scoured do.	1	3½	2	6
	Unwashed	0	4	1	3½
	Locks and Pieces	1	1	1	2
V. D. Land—	Lambs	1	6	2	5
	Scoured do.	1	7	2	9
	Unwashed	0	9½	1	6
	Locks and Pieces	0	8	1	10½
Cape of Good Hope—	Fleeces	1	1½	2	2
	Lambs	1	2	2	0½
	Scoured	1	2½	2	1½
	Unwashed	0	7½	1	5

MANURES.

PRICES CURRENT OF GUANO, &c.

Peruvian Guano, (per ton, for 30 tons)	£12	0	0 to	£0	0	0
Do. Do. (under 30 tons)	12	12	0	13	5	0
Kooria Mooria Guano, (48 per cent. Phosphate and 4 per cent. Ammonia)	6	0	0	6	10	0

ARTIFICIAL MANURES, &c.

Nitrate Soda (per ton)	£15 10 0 to	£16 0 0	Sulph. of Copper or Roman Vitriol, for Wheat steep., 1st qual.	£ s. d. 38 0 0 to	£ s. d. 39 0 0
Nitrate Potash or Saltpetre	32 0 0	33 0 0	Ditto, 2nd quality	22 0 0	23 0 0
Sulpht. Ammonia	14 0 0	15 0 0	Salt	1 0 0	1 5 0
Muriate ditto	20 0 0	26 0 0	Bones, Dust, per qr.	0 19 6	1 0 6
Superphospht. of Lime	5 10 0	6 0 0	Do. ½-inch	0 17 6	0 19 6
Soda Ash, or Alkali	11 0 0	12 0 0	Oil Vitriol, concentrated, per lb.	0 0 1	0 0 0
Gypsum	1 10 0	2 0 0			
Coprolite	2 10 0	3 0 0	Do. Brown	0 0 0¾	0 0 0

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IMPORTANT TO FLOCKMASTERS.

THOMAS BIGG,

AGRICULTURAL AND VETERINARY CHEMIST,

BY APPOINTMENT, TO H.R.H. THE PRINCE CONSORT, K.G., &c.

LEICESTER HOUSE, GREAT DOVER-STREET, BOROUGH, LONDON,

Begs to call the attention of Farmers and Graziers to his valuable SHEEP-and LAMB DIPPING COMPOSITION, which requires no Boiling, and may be used with Warm or Cold Water, for effectually destroying the Tick Lice, and all other insects injurious to the Flock, preventing the alarming attacks of Fly and Shab, and cleansing and purifying the Skin, thereby greatly improving the Wool, both in quantity and quality, and highly contributing to the general health of the animal.

Prepared only by Thomas Bigg, Chemist, &c., at his Manufactory as above, and sold as follows, although any other quantity may be had, if required :—

4 lb. for	20 sheep,	price, jar included ……	£0	2	0
6 lb.	30	,, ,, ,, ……	0	3	0
8 lb.	40	,, ,, ,, ……	0	4	0
10 lb.	50	,, ,, ,, ……	0	5	0
20 lb.	100	,, ,, (cask and measure	0	10	0
30 lb.	150	,, ,, included)	0	15	0
40 lb.	200	,, ,, ,, ……	1	0	0
50 lb.	250	,, ,, ,, ……	1	3	6
60 lb.	300	,, ,, ,, ……	1	7	6
80 lb.	400	,, ,, ,, ……	1	17	6
100 lb.	500	,, ,, ,, ……	2	5	0

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price 5s. per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.

'Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and that it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards, and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

"I remain, dear Sir, your obedient servant,
"For JOHN TINGEY, Esq.,
"To Mr. Thomas Bigg." "R. RENNY.

In addition to the foregoing, he has very materially improved, as well as considerably reduced the price of his Dipping Apparatus; and he would venture to suggest that no Flockmasters ought now to be without one. Price in London,

New and Improved Dipping Apparatus, on Wheels	£14	0	0
Ditto ditto with Iron-bar Drainer	5	0	0
Ditto ditto ………	4	0	0
Ditto, plain, with Wooden Drainer………	3	0	0

N.B.—Catalogues, containing List of Patrons, Testimonials, &c., to be had of all agents, or sent direct per post free.

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MR. CURTIS, author of the Medical Treatise, "MANHOOD," may be consulted as usual, either by letter or personally, at his residence, 15, ALBEMARLE STREET, PICCADILLY, LONDON. The efficacy and harmless nature of the remedies employed by Mr. CURTIS having been demonstrated by the most complete success during a practice, extending over a period of 20 years, nervous sufferers of every class, including those afflicted with want of energy, loss of memory, pains in the back, self-distrust, functional incapacity or debility, have a perfect guarantee that the utmost skill and experience will be made available in the treatment of their cases. At home for consultation daily, from ten till three, and six till eight. Sundays from ten till one.

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An enlarged edition of the above work has just been published, and may be had of Piper & Co., 23, Paternoster-row; Mann, 39, Cornhill, London; Guest, Bullring, Birmingham; Heywood, Oldham, Manchester; Campbell, Argyle-street, Glasgow; and all Booksellers. Price One Shilling, or free by post, in a sealed envelope, from the Author, for 14 stamps.

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⁂ BEWARE OF SPURIOUS IMITATIONS!

No. 6, Vol. XVI.] DECEMBER, 185[illegible]. [Third Series.

THE

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AND

MONTHLY JOURNAL

OF

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DR. HASSALL

ON

THORLEY'S FOOD FOR CATTLE.

FROM THE "MARK LANE EXPRESS," 10th JAN. 1859.

74, WIMPOLE STREET, CAVENDISH SQUARE, 2[illegible] *December*, 1858.

HAVING, on more than one occasion, been requested to make an analysis of THORLEY'S WELL-KNOWN FOOD FOR CATTLE, and to express my opinion respecting it, I placed myself a short time since in communication with Mr. Thorley, desiring to be furnished with certain particulars relating to his Food. Mr. Thorley, who was previously a stranger to me, at once conducted me over his Manufactory, showed me all the ingredients employed, and also the process of manufacture of the article.

I took away with me samples of the food as well as of every ingredient entering into its composition. I have since carefully examined and tested these, and I have also compared the samples procured at the Manufactory with others obtained by myself from other sources.

I am, therefore, now in a position to express an authoritative opinion respecting the composition and properties of THORLEY'S FOOD FOR CATTLE. I would remark of it—

First. That the ingredients used are all of excellent quality, and are purchased without regard to expense.

Second. That the receipt or formula, according to which the Food is prepared, is an admirable one, no ingredient being selected on account of its cheapness, but those only being chosen which are best adapted to fulfil the objects intended.

Having regard, then, to the composition of THORLEY'S FOOD FOR CATTLE, I find that it possesses the following properties in an eminent degree—it is highly nutritious and fattening—it is a tonic and gentle stimulant, aiding, when mixed with other descriptions of food, materially the digestive powers of an animal—a point of great consequence, since it is an undoubted fact that much of the nourishment contained in the ordinary food given to cattle is lost in consequence of the impaired or defective action of the digestive organs.

Comparing THORLEY'S FOOD FOR CATTLE with other Cattle Foods, with the composition of which I am acquainted, I unhesitatingly assert that it is infinitely superior to any others at present known to me. In all those of the composition of which I have a knowledge, I have found ingredients to be present which have been added solely on account of their cheapness, that is for the purpose of adulteration, and to the exclusion of other more suitable, but more expensive articles. In some of the Foods I have detected ingredients which are positively injurious.

Comparing, also, the samples taken by me from the Manufactory with others procured from different sources, I found a perfect accordance in the composition of both series of samples.

Before bringing this Report to a conclusion, I would notice an objection sometimes urged against the use of Cattle Foods generally, namely, that the price at which they are sold exceeds considerably that of the materials from which they are prepared; this can be readily shown to be a very unreasonable objection. THORLEY'S FOOD FOR CATTLE is a compounded and manufactured article, upon the composition and preparation of which much care, labour, and expense have been and are bestowed. Moreover, the refuse materials resulting from the scouring, grinding, &c., and which are an entire loss, amount to twenty per cent. To estimate, therefore, the value of such an article merely at the cost of the raw materials is both absurd and unjust.

Neither must the value of this, or any other Cattle Food, be determined by the exact amount of nourishment contained in them; although in the case of THORLEY'S FOOD this is very considerable, but the indirect effects resulting from its employment must be taken into consideration; that is, the effects of the article in improving the appetite, digestive powers, and general vigour of the Cattle fed upon it. By the improved condition of the digestive organs animals may be fed upon coarser and cheaper articles of food, and from which, without the aid of THORLEY'S FOOD, they would be unable to extract all the nourishment which such articles really contain. I consider, then, that the use of THORLEY'S FOOD is attended, not with an additional, but with a considerable saving of expense.

I am glad, therefore, to be enabled to recommend—which I do strongly and conscientiously—THORLEY'S FOOD FOR CATTLE as a highly important and valuable compound for the feeding of all descriptions of Cattle.

Signed, ARTHUR HILL HASSALL, M.D.,

Analyst of the Lancet Sanitary Commission; Author of the Reports of that Commission; of "Food and its Adulteration;" "Adulterations Detected," &c., &c.

From Alfred Brown, Esq., Wandsworth, Surrey, Member of the Royal College of Surgeons, England; Licentiate of the Apothecaries' Company, London; Fellow of the Medical Society of London; late Demonstrator of Anatomy at the St. George's School of Medicine.

Wandsworth, Surrey, Dec. 11, 1858.

SIR,—I shall feel obliged by your sending me another cask of Thorley's Cattle Food. I have been making experiments with it upon one of my milch cows, and think it only fair that I should let you know the results. My cow, before I used the Food, was fed upon hay, wortzel, and water *ad libitum*, and upon this diet she yielded one gallon of milk per day, making two pounds of butter per week. She was five months gone with her second calf; when she had the Food I discontinued giving her the wortzel, and gave her a measure-full (about half-a-quart) of the Food with a peck of damp chaff night and morning; besides, she had as much good hay as she would eat. Upon this diet, in less than a week she doubled the quantity of milk and butter; and in order that I might be sure that this excellent result depended upon the Thorley's Food, I discontinued it, and returned to her former diet, and she speedily went back to the gallon of milk per day. After waiting about a fortnight, I again returned to the Thorley's Food, and in a few days she increased to two gallons of milk per day. This experiment I repeated several times, and with the same results. I have tried the Food upon other animals—horses, sheep, &c.—and with the most satisfactory results. I have also analysed the Food, and find that it contains nothing that would in any way injure the system or constitution of cattle. You are at liberty to make any use you please of this communication, and I am, Sir, yours, &c.,

To Mr. J. Thorley. ALFRED BROWN.

THE FARMER'S MAGAZINE.

DECEMBER, 1859.

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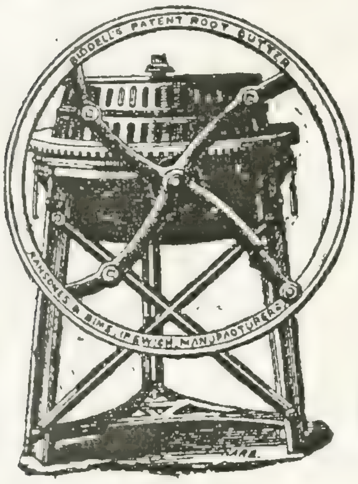
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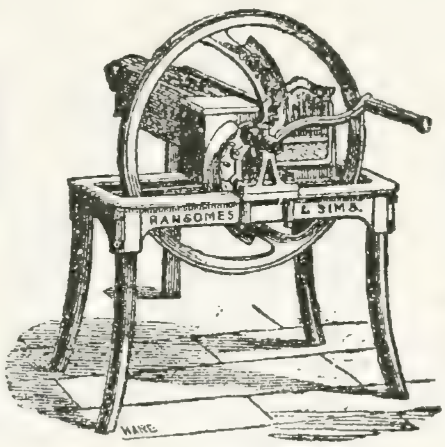

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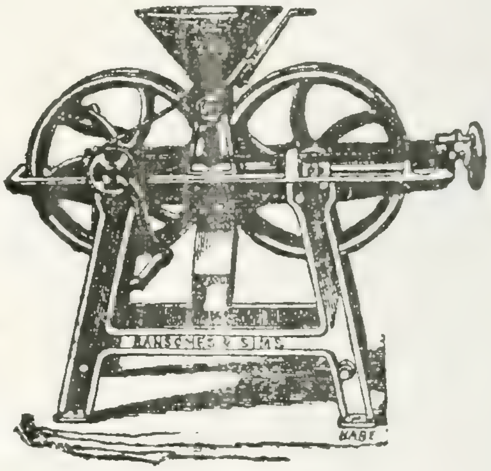

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The Gaffer's Gray

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THE FARMER'S MAGAZINE.

DECEMBER, 1859.

PLATE I.

A PRIZE SHORTHORN HEIFER;

BRED BY MR. J. W. BROWN, OF UFFCOTT, SWINDON.

This heifer made some sensation at the two great Christmas Fat Cattle Shows of last year. At Birmingham she took the first prize of 10 sovs. for Shorthorn heifers, with the silver medal to the breeder; and at the Smithfield Club Show the week following, another first prize of 15 sovs. for Shorthorn heifers, with another silver medal to the breeder, and the GOLD MEDAL as the best cow or heifer in any of the classes. It was thought by many good judges that she had not full justice done her at the Midland Counties Meeting, and certainly the award in London would go to confirm this; as the heifer beat here "the best Shorthorn" and gold medal cow of the Birmingham entry. There was, however, unfortunately but little opportunity for the public to make a second comparison, as Mr. Brown's heifer was suffering from disease almost from her arrival in Baker-street, and of course, had at once to be removed from the yard. This was the more to be regretted, as she was really a beautiful heifer, showing a very happy union of symmetry and quality. In fact, her touch was finer than one would have almost supposed from a rather short pedigree. Still, on one side she was by Mr. Stratton's well-known Waterloo (11025) out of one of Mr. Brown's own cows, also the dam, we believe, of Mr. Brown's prize bull, Salisbury. The Smithfield heifer was just upon four years old at the time she was shown.

The gold medal heifer came as a very good prologue to the Uffcott sale of Shorthorns in October last, when some fair prices were realized. The herd was never a very large one, and Mr. Brown has now quite given up this branch of breeding; intending for the future, as he writes to us, to devote himself entirely to the breeding of the well-known Hampshire Down sheep. Amongst these, also, he has achieved some well-merited success. In fact, Mr. Brown has always been more of a sheep man, and one of his most famous rams took a gold medal at the Great Paris Agricultural Exhibition in 1856.

PLATE II.

THE GAFFER'S GREY.

We recognize in the Gaffer's Grey that useful creature, the farmer's maid-of-all-work, and we should say by appearances it was her Sunday out. On what other day should we have a chance of finding her idle? If the Gaffer is not riding her round the farm, or driving her to market in the light-cart, she is at bush-harrow in the long meadow, in the hay-making machine, or gone to the mill with a sample-sack of the wheat close. Or Ben, another jack-of-all-trades, has taken her to the Post-office, or to Farrier Bolus to get a drench for the Shorthorn. If she is not thus employed, then Gaffer Giles has taken her to the County Assizes, or to meet the foxhounds at Furze Gorse, or to make a round of calls with Lord Oily Gammon—*his* M.P., as the Gaffer styles him, having given him his vote—whom he compliments continually on that celebrated speech his Lordship had in his hat, on the hustings. Or they are at a ploughing match, a fair, or cricket match: or the Gaffer has been appointed judge at some local coursing meeting—or, whom do you see riding up the avenue on the grey, with his gun over his shoulder, on some great day at the Earl of Battue's, but Gaffer Giles once more? Then, on getting to the Round Hills, or "The Black Pig" in a hoar or white frost half an hour before time, and almost beginning to think the groom really spoke the truth, when he told us, on leaving home, there would be no hunting, with what delight have we hailed the Gaffer and his Grey coming round the corner just as the sun broke out, by the side of the old Squire, in the middle of his merry little pack! And for a near cut home, who knew all the weak points in the fences, every bridle-way, ford or line of gates within a circuit of twelve miles of the Valley Farm, better than the Gaffer and his Grey? It being Sunday, and having but a thin pair of boots on, you must excuse our walking round the yard, but you will find the Shorthorns in a shed at the back, and the bull in an adjoining one, so just look out that he don't pin you against the wall. If hungry the Gaffer will be returning from church in a quarter of an hour, and we will warrant you have an Old England welcome to the roast beef and plum-pudding.

THE HERDS OF GREAT BRITAIN.

Chapter XII.

MR. STIRLING'S, OF KEIR.

Rain and mist ruthlessly pursued us, as we wandered, note-book in hand, last September, amongst the English herds; and Scotland was doing itself ample justice in this respect, when, fresh from those "beeves of Cumberland," so renowned in Border story, we alighted at the Bridge of Allan, and went on our way to Keir. If a Southron eye had cared to gaze on that wide-spread carse of Stirling, where St. George's cross met St. Andrew's in

"As red and rude a fray,
As e'er was proof of soldier's thew,
Or theme for minstrel's lay,"

well nigh six hundred autumns ago, it would have had no scope that morning. We could scarcely discern the proud old Castle and Craig landmarks, which still bear their mute witness to the meeting of those mighty hosts, when the plough-share no longer turns up the rusty pike-head, and even the memory of the "battle sheaves" has died away; but Dunmyot shrouded itself less sullenly behind us, and we caught occasional glimpses of the bleak range of the Sheriffmuir Hills, with the little homestead of Pendreck clinging to their side.

Gallows Hill, where many a "neck verse" has been sung, was on our right, directly facing the entrance of the Keir avenue, and then a ride of another mile brought us to the Mains, the pleasant residence of Mr. Young, the factor of the estate. Keir includes about 1000 acres within its policy wall, and nearly the whole of it is in Perthshire (the Yorkshire of Scotland), which Mr. Stirling represents in Parliament. The annual draft roup, which is chiefly confined to shorthorn bull calves, Clydesdales, and Leicesters, was just over, and the herd only numbered twenty-five cows and heifers and two bulls. Its commencement dates from 1852, when Blencow (11,182), of the Gwynne tribe, and bred by Mr. Troutbeck, was purchased. Four or five cows, of the Sweetlips tribe, from Mr. Boswell's, of Balmutto, composed the germ of the females, which have been gradually strengthened by heavy purchases at Sir Charles Knightley's, Mr. Ambler's, and other breeders' sales, as well as by private contract. When Blencow passed into Mr. Harvey of Pinkston's hands, his place was taken by Leader (11,674), of Mr. Milne of Faldonside's breeding; and in 1855 Mr. Fawkes's yearling bull, John o'Groat (13,090), by Bridegroom (11,203), joined the herd for 200 gs., after he had been placed second to Master Butterfly at "cannie Carlisle." Mr. Fawkes stipulated that he should be shown at the Yorkshire Society's Meeting that summer, and the first honours which he won there received an accession at the Glasgow Society in 1856, when he was awarded the silver medal as the best bull in the yard. In the following summer he was the first prize aged bull at Salisbury, and when Glasgow had again handed him her prize ribbons, he was seen in public no more.

The pleuro disease broke out that autumn, and no less than 22 cows of the herd died after John o'Groat, who wasted very slightly during his month's illness, and just saw the new year in. He had served some cows belonging to neighbours at 10 gs. each, and several of the Keir survivors, so that the blood of what so many judges have declared to be "one of the very finest big bulls ever seen in a show-yard," has left its mark in Scotland. The heifers are large, thick-fleshed, and slightly long on the leg, and generally very easy to distinguish from their family resemblance to him about the head, and peculiar mode of holding it straight out. His calves made a very high average at the Keir roup in his Salisbury year; one of them, Marble Cutter, from Young Carrara by Blencow, reached 200 gs., and was shortly afterwards sold to the Australians at a fifty-guineas advance; while a quey calf went for eighty-two. There were then some negotiations with Mr. Richard Booth for Sir Samuel, but the disease (from which the herd has been free for eighteen months) was too recent to risk him, and consequently Hiawatha (14,705)), by Captain Balco (12,546) from Playful, and a brother to Lady of Athelstane,—who had been purchased in the preceding year at 200 guineas, from Mr. Douglas, has been solely in use for two seasons. He had in that gentleman's hands beaten Col. Towneley's Fred, and Sparrow Hawk, Mr. Ambler's Museum, Sir James The Rose, and a long row of bull calves, at Rotherham; and in 1857, he was shown in the Keir lot, along with John o' Groat, Miss Nightingale, and Windsor Flower, at the Highland Society's Meeting, at Glasgow. This is the only occasion on which Mr. Stirling has entered the Highland Shorthorn lists, and then both his bulls were placed first in their classes, and Miss Nightingale third to Rose of Athelstane and Ringlet. So far he has won a large number of prizes at Glasgow and other local shows; but John o' Groat is the only Shorthorn that he ever sent to have a battle royal in England. Ayrshires are also kept for the dairy; and the Park is well stocked with bullocks, and Leicester sheep, which have been principally crossed from the flocks of Lord Polwarth, and Messrs. Brown of Burton, Roy of Menthory, Carter of Richmond, and Simpson of Blainslie.

The breeding of Clydesdales, which is also a great feature at Keir, is contemporaneous with that of the Shorthorns, and, foals included, the stud cannot number less than sixty. Twenty-five of them are brood mares, which are generally put to the horse at three. The Suffolks have totally failed to strike root in the hearts of the Scottish husbandmen. In vain did Mr. Stirling purchase a clever pure-bred chesnut, by Crisp's Captain; and give 120 gs. for a chesnut mare, daughter of Catlin's Duke, and an Ipswich prize-winner to boot. They said that they had too much roundness of bone, and a lack of freedom of step, and that the mists affected their eye-sight. A little carter (whom of course we addressed as "Sandy," at a shot) took up this last position, and stuck to it as stoutly as if he had been an oculist. The Clydesdales we saw here measured from sixteen-three to fifteen-two, but they like them all sixteen if possible. Clyde, the sire of most of the young stock, had been purchased from Mr. Samuel Clark, of Kilbarchan, and sold for 150 gs. to The Speaker; and we heard that the Duke of Richmond had lately given Mr. Stirling 70 gs. for a two-year-old filly, and the Earl of Airlie, 10gs. more for another. "Jean," the dam of the Duke's filly, met us in company with "Star," "Bet," and the fair "Sally," who was first at Perth, and second at the Highland Society. In fact, nearly all the twelve working on the farm seemed to have worn the prize ribbons some time or other, and one mare, past or present, had been decorated sixteen times.

Crossing the road from The Mains, hard bye the ploughmen's cottages, we reached, by a gentle ascent, that admirable new farm-stead, with which they were so truly in character. Mr. Stirling has already spent three anxious years watching the progress of his plans, and the summer of '61 will barely see them completed. The cost is computed at about £8,000, including the clock tower, which is lined in the interior with polished ashlar work. It is built of the freestone of the country, and the floors are laid with Arbroath flags, neatly and closely pointed upon six inches of stone metal. Nearly the whole of the interior walls are lined, like the tower, for about six feet, and beyond that with squared rubble, which avoids the necessity of plaster, and does not afford vermin the faintest hope of gaining a settlement. The principal entrance is at the north-east corner, near the granary. Beneath it, on the east range, comes the cart-shed fitted with grease-pot niches; the water-tank in its rear, covered so as to be used for a store for farm implements not in use; the barn; the straw-house, and behind them, the saw-pit, the smithy, and the engine-house, on whose chimney the starlings were perpetually perched, while a gigantic fly-wheel was lazily resting against the wall beneath, and waiting for its eight-horse power engine. At the corner of the south range is a twelve-stall stable, eleven feet high, and divided in twain by a harness-room. Future Robin Burnses could have no more comfortable ingle to ruminate by, as the fire flashes cheerfully on the polished pine wainscoting; and the bump of order among the six must be feebly developed indeed, if with so many aids to neatness on the walls, they cannot keep their harness bright, and in its own domain. Each of them has also a separate bin, holding the exact weekly allowance of oats and beans. The stalls are nine feet by six, and iron-bound; the water (which is drawn from cocks in the stable), hay, and oats are all kept strictly to their three compartments in the manger, and the rope of the halter acts in a long square tube, and is untied from below. The overseer's house forms the centre of this range, and is connected with the dairy, which is so contrived, that the sun can never strike the cream. Next in order are some loose-boxes, including one without corners for the especial use of a mare when she is about to foal. After a tour up the clock-tower stairs, at the south-west corner, to the future business room, we descended to the byre, which composes, with the cowman's house, the whole of the west range. The byre itself is 128 feet 6 inches long, and is so constructed that it may very easily be divided into three. It is built for thirty-two cows, which stand, two-and-two, in stalls of polished flag, each with an iron rack of its own, which is filled by the aid of the tram-road in front. On the north side are the piggeries, the calf-houses, and the lumber-shed; and although at present there is no trace of them,—15 loose boxes and two boiling-houses are to be built in the centre of the square, and encircling the manure-heap. The latter will be so constructed as to be covered or not at pleasure; and the contents of the adjacent urine-tank will be pumped on to it by means of the engine. The magnitude of the homestead may be judged of from the fact that the width of the roadway in the court, which will be paved with squared whinstone, is twenty-four feet. Of this, however, a small portion is taken up with the tram-road, which runs round it, and thus opens up a complete communication between the byre and the dung-heap. There is nothing peculiarly decorative about the buildings, with the exception of the tower, but devices and mottoes have been applied with no niggard hand. Each department bears an emblem of its contents in stone; and hence a stranger wandering only round the outside, can get all the bearings exactly. A horse's head—for which neither Clyde, Young Champion, Darkie, nor Audubon, son of Birdcatcher, could have stood to the sculptor—marks the stable; but Stella's and Lady Bountiful's heads have been copied by him for the cowhouse. A wheat and barley-sheaf crown the windows of the granary; and a brace of reaping-hooks and scythe-stones, crossed, are reserved for the door through which the sheaves are borne to the thrashing-machine. Mr. Stirling has well acted up to his family motto, "*Gang Forward*," which once or twice had its place with "*Poco à Poco*" (Little by little) on the walls; and "*Tak Time ere Time be tent*" speaks with apt and homely eloquence from the lucky clock-tower, which is unblest with an E. B. Denison's or a Barry's love.

From the future home of the Keir shorthorns, we then crossed the meadow to the present one. After doing duty for nearly a century, the site is shortly to be taken into the grounds; and the one old ash, which holds its solitary state, will have to yield its place at last to a Turkey oak or a variegated plane. But we are not among those far-famed garden terraces yet, and the peacocks, which are vulgarly hobnobbing with the "kain chickens," the white Dorkings, the small boar of Prince Albert's breed, and the first-prize sow at Glasgow—are only slight foretastes of it. After the structures we had just left, it seemed strange to commence our wanderings into the ancient calf-houses, but we were soon in and out of three, which contained calves by Hiawatha, from Wellington, Laura Bell, and Rosy by Sir Charles (13705), the latter of a very clever stamp, and with a good eye and muzzle. The cows always lie out, and have no oil-cake or artificial food after May morning; but it was just milking-time, and we saw them at home. First and foremost among them was Drapery, a massive, short-legged cow, with good form, and much heavy flesh, but a trifle strong in the horn. She has only been shown once in her life, and then at Glasgow this summer, when she won the cow prize (beating Mr. Tod's royal prize cow, Volga), and the medal for the best female in the yard. She is by Grey Friar (9172), and was bred by Sir Charles Knightley, at whose sale Mr. Young purchased her for 100 gs., along with Chemisette (105 gs.). The latter died in the disease, but it quitted its hold of Drapery when she slipped her calf to the Duke of Cambridge (12742), and Stella adopted a similar style of recovery. Next to her was Laura Bell, by Phoenix (10608), (the winner of about twenty prizes, including firsts at the three nationals in one year), for whom Mr. Douglas bid up to 150 gs. at Mr. Chrisp of Hawkhill's roup. She has a great deal of character, but is perhaps a little high on the leg, and decidedly the tallest cow there. Rosanna, by Sir Charles Knightley's Lovemore (10476), and bred by Colonel Pennant, struck us as thick and well ribbed up, and with more style than the big and useful Eliza 2nd, who fetched the top price (100 gs.) at Sizergh. A nice forequarter and bosom marked Syllabub by Puritan (9553), who was bred by Mr. Harvey Combe, and bought at Mr. Grenfell's sale; and her bull calf by Hiawatha, who left Keir for 100 guineas, has since won the first prize and medal for young bulls at Dundee. Near her stood the white Lady Bountiful, rather less than the others, and a little high on the rump, but remarkably good in front. The gaudy style of Buchan Hero had been transmitted in a degree through three generations to Tanzy by Leader (11674), whose capital back and length made up for her being a trifle light in the twist. Heir-at-Law (13005) was represented by Young Sonsie, bred by Mr. Mark Stewart, of Southwick; and Miss Nightingale, by Grand Turk (12969), seemed a big well-formed cow, with nice quality and flesh, and inheriting all the fine length of quarter of her sire. She won six prizes in Mr. Ambler's hands; and Mr. Young, after bidding Mr. Torr up to 250 gs. for Britannia at the sale, purchased her for 200 gs. Twice over she was second to Mr. Ambler's own Lady Mary, and once, at the Durham County, to Mr. Booth's Queen of the May. There was Stella, too, a very excellent cow, bred by Mr. Syme, of Redkirk, with rarely covered huggins, good handling, and an enormous udder. A very creditable calf from her by Hiawatha was in an adjoining shed, along with one of three days old from Syllabub, and the only light-coloured one that Hiawatha ever got.

On our way to the other byre, we looked in on Windsor Flower, a nice little cow, with a fine head and eye. She was purchased for 250 gs. from Mr. Wetherell, along with her Earl of Derby calf, which soon after died. Her stifle has been injured in service; but although she looks slightly out of bloom, her daughter by Lord Scarboro' (1845) is certainly no improvement upon her, and was quite thrown into the shade by the Princess of Cambridge, a well-haired, and thick-fleshed daughter of Chemisette. Next to her stood Minnehaha, by Heir at Law, who was purchased as a calf for 100 gs. from Mr. Douglas, and whose neat head and forequarters and well-spring ribs have been reproduced in her first calf, Langton, by Hiawatha. Among the John O'Groat heifers, we especially marked Anna Rose from Rosanna, a little plain perhaps in the quarters, but very thick-fleshed and promising; Cassandra from Topsy by Matadore (11800) is not so catching at first sight, but she is very good in her top, and promises to make a very slashing cow in time.

And so we left the old homestead, and strolled away beneath the quaint archway, with its *Salve* and *Vale* benedictions, amid trees from every tropic, and along hedges of golden holly, and finally through the house itself, in our search after Langton, Hiawatha, and the trotting horse. Passing by cabinets rich and rare, and the master-pieces of Velasquez and Murillo, we at last descried in a corridor the paintings of John O'Groat, Miss Nightingale, and Mrs. Disraeli by Exchequer (9721), flanked by some Edinburgh prize West Highlanders and Elis and Touchstone. But night was fast drawing on, and we had no time to linger over canvas life. Little Duncan was in waiting, with his beloved Hiawatha, a very handsome long and low bull, perhaps a trifle slack behind the shoulders, and showing rather too much offal, but with a very sweet head, and long snugly-packed quarters. Besides his very promising son Langton, he had two other companions in the court yard, one of them Young Champion, a true inheritor, with his neat head and beautiful couplings, of the blood which ran in the veins of Shac-a-Bac, Old Shales, Tearaway, and the other Old Norfolk cob worthies. Equally good in his line was his neighbour on the other side of the archway, a white-faced two-year-old Clydesdale colt, who had just beaten a large field for the head prize at Perth, and is likely to have sixteen foals dropped to him next season at Keir. He was the last trace we saw of it, as he stood by chance in the morning the grand centre piece of the avenue gate, where his guardian was lingering for a bit of gossip; and thus we had the pleasure of leaving Scotland with one of its model bays fresh in our eye, and a hope that we might greet him again in his Perth form, among the Canterbury Pilgrims of next summer.

THE EARLY ENGLISH AGRICULTURAL AUTHORS.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

That the early inhabitants of our island practised agriculture is well known. That the districts bordering on the English Channel were better cultivated than those of the interior of the island, we learn on the authority of Cæsar. After his expedition to England, B.C. 55, he described the Cantii, or inhabitants of Kent, and the Belgæ, inhabiting our counties of Hants, Wilts, and Somerset, as the most advanced of our island tribes in the habits of civilized life. They cultivated the soil, employed marl as a manure, stored their corn unthrashed, and separated it from the chaff and bran, only as their daily demands required. The interior inhabitants lived chiefly upon milk and flesh, being fed and clothed by the produce of their herds. "The country" adds Cæsar, "is well peopled, and abounds in buildings resembling those of the Gauls, and they have a great abundance of cattle. They are not allowed to eat either the hen, the goose, or the hare; yet they take pleasure in breeding them." Cicero in one of his letters remarks, "There is not a scruple of money in the island; nor any hopes of booty but in slaves"—a description that the industry and intelligence of succeeding ages have rendered singularly inapplicable.

Such are the earliest yet meagre allusions to the farming of our island, in our possession. There is no doubt but that our ancestors had more agricultural knowledge than we are always willing to believe. And that this skill in the art of tillage did not diminish in succeeding Saxon and Norman days, is equally certain. To the very earliest existing notices of the farming of saxon times I do not, however, propose now to direct the reader's attention. My intention is to commence these retrospective glances, with some of those writings or official notices which appeared from the ninth or tenth centuries, to about the year 1532—the year when old Fitzherbert published his work on the English farming of those days.

The conciseness and spirit with which these early English writers addressed their contemporaries is well worthy of our notice. They had evidently little faith in the effect of long arguments or half measures. Their works could only be known in manuscript. Printing was, in the days to which I refer, either unknown or merely rudely commenced. Our earliest authors therefore imitated, almost of necessity, the terseness of our early lawgivers, who practised brevity to admiration. Now it is in the statute books of England, Wales, and the sister-kingdoms, that we find some of the earliest notices of the agriculture of our islands. And it is not only an amusing but an instructive inquiry to trace in these laws the primitive notions of our ancestors with regard to husbandry—how bravely former English senates endeavoured to teach farming by acts of parliament; tried to keep not only the prices of food below its market value, but of labourers' wages also; how they earnestly strove to protect his growing corn from vermin, from trespasses of all kinds, excepting game, and how they even endeavoured to teach the men of those times what they should eat, what clothes they should wear, and in what rural sports they should indulge.

Their very limited knowledge of the true principles of political philosophy, indeed, more recent senates have not always exceeded, and modern parliaments have rarely equalled in their laws even the vigor of those of the Houses of Plantagenet and Tudor.

The reader when he is following me through some of these early legislative writings, must remember that in those days the population of England was in all probability not much larger than that of London now. That the country was undrained, ill cultivated, and that only the richest portions of the land were enclosed, commons and forests occupying the remainder. Of the produce of that portion under the plough, every notice which has escaped to us betrays the poverty. For instance in 1387, on the manor farm of Hawstead in Suffolk, 66 acres of wheat produced 69 quarters of grain, 26 acres of barley yielded 52 quarters 2 bushels of seed. And about the same period the manor farm of Dorking, in Surrey, produced from 30½ acres of barley 41 quarters 4 bushels of grain, 28 acres of oats only 38 quarters 4 bushels.

The writers whose works I propose to hereafter notice, are Greathead or Grotehead and Fitzherbert. But previous to this it will be well to take heed of the laws which before and during their time were made to regulate the proceedings of the farmer.

The value of his corn early attracted the attention of our parliaments. In a statute supposed to have been made in 1266, the 51st of Henry III., the municipal authorities of towns were thus directed: "First they shall enquire the price of wheat, that is to wit, how a quarter of the best wheat was sold the last market day, and how the second wheat, and how a quarter of barley and oats."

In 1360, by the 34th Edward III. c. 20, the exportation of corn was prohibited. It was 33 years after that time, that in 1398, by 17 Richard II., c. 7, all the king's subjects were allowed to export corn to any but to the king's enemies. This act was not repealed till the year 1603.

In 1436, 15 Henry VI., wheat was allowed to be exported when it was 6s. 8d. per quarter at the place of shipment, and the preamble of the act indicates that the produce of wheat had increased beyond the demands of the population, since it says when alluding to the restrictions on the exportation of corn, "For cause whereof, farmers and other men *which use manurement of their land*, may not sell their corn, but of a bare price, to the great damage of all the realm."

It is evident from this statute that only some of the most enterprising farmers, then manured their corn land. Still they did not so increase the produce of grain as to render their country quite independent of foreign corn; for only a quarter of a century afterwards, we find the first symptom of protecting duties.

In 1463, by the 3rd of Edward IV., c. 2, it was declared that "the labourers and occupiers of husbandrie, within the realme of England, be dayly grievously endamaged by bringing of corn out of other lands and parts, into this realme of England, when corn of the growth of this realme is at a low price." It then proceeds to enact that corn shall not, under pain of forfeiture, be imported into England, until wheat exceeds in price 6s. 8d. per quarter, rye 4s., and barley 3s.

Our old British ancestors long before this time had, however, absolutely prohibited the exportation of corn.

By the old laws of Wales, made certainly not later than the tenth century (*Ancient Laws and Institutes*, p. 655,) it was ordered that "three things are not to be conveyed to a foreign country, without the permission of the country and the lord—gold, books, and wheat. And three things that an aillt (alien) is not to sell without the permission of his proprietory lord, lest he should want to buy them of him—wheat, money, and horses. And where his lord shall not buy them of him, he is at liberty to sell them wherever he willeth, so that he do not sell them to a foreign country."

In 1533, the act of 25 Henry VIII., c. 2, for a time put an end to the exportation of English corn, and absurdly enough gave the lords of the council the power to declare by proclamation the prices at which farmers and others should be compelled to sell their commodities, although, as the preamble of the act much more wisely allows, "dearth, scarcity, good cheap, and plenty of cheese, butters, capons, &c., and other victuals, happeneth, riseth, and chanceth, of so many and divers occasions, that it is very hard and difficult to put any certain prices to any such things."

Long before the resolute days of stout old Harry the VIII., the legislature had been at work heartily endeavouring to reduce the price of provisions below their market value, for in 1266, by the 51 Henry III, it was ordained (and this statute was not repealed until the 8th of Ann c. 18) that "when a quarter of wheat is sold for 11d. then wastel bread of a farthing shall weigh 6lbs. and 16 pennyweights, (a pennyweight round and without any defacing, was to weigh 32 wheat corns in the midst of the ear, and 22 pennies do make one ounce, 12 ounces a lb."). And by the same statute it is provided that "when a quarter of wheat is sold for 3s. or 3s. 4d., and a quarter of barley for 1s. 8d. or 2s., and a quarter of oats for 1s. 4d., then brewers in cities ought, and may well afford to sell two gallons of beer or ale for a penny, and out of cities three gallons for a penny."

The parliament of those times were evidently in earnest in their endeavours to keep the bakers and brewers in order, for during the same year (1266) was passed the "statute of the pillory and tumbrel," which also continued in force till the time of Queen Anne. This, like all our early statutes, eschewed all unnecessary verbiage. The stout barons of that year thus commenced their act: "If a baker or brewer be convict because he has not observed the assize of bread and ale, the first, second, and third time he shall be amerced according to the offence, if it be not over-grievous; but if the offence be grievous and often, and will not be corrected, then he shall suffer punishment of the body, that is, to wit, a baker to the pillory, the brewer to the tumbrel or some other correction."

We may suspect by this marked distinction between the punishment of the bakers and the brewers, that even then brewers were held to be in a larger and more dignified way than the bakers, since they were to be allowed the privilege of riding in a tumbrel.

A certain degree of humanity was displayed by the legislature even in punishing rascally bakers, for by another statute made about this time (Ruffhead, vol. i. p. 186), it was provided that a baker should only be amerced "if his bread be found lacking one farthing in two-and-sixpence : " but if his short weight exceeded this, he was to be placed in the pillory. And further, it was humanely provided that "every pillory, or stretch neck, must be made of convenient strength, so that execution may be done upon offenders without peril to their bodies." The unprincipled butcher by another statute (*ibid p.* 187) was subjected to the same punishment, "who selleth swine's flesh meazled, or flesh dead of the murrain."

The lawgivers of the iron days of Cressy and Poitiers had evidently an interest in other viands beyond mere beef and mutton, for in the act of 1363 (37 of Edward III, the statute of Westminster, made by the king, lords, and commons), we find that "for the great dearth that is in many places of the realme of poultrie, it is ordained that the price of a young capon shall not pass threepence, and of an olde capon fourpence, of a pullet one penny, of a goose fourpence, and in places where the prises of such vittailes bee less, they shall holde without being enhanced by this ordinance. And that in the townes and markets of upland, they shall be soulde at a less prise according as may be agreed upon between the seller and the buyer." This wise law was not repealed until the year 1624.

More than two centuries after this absurd poultry statute, we find the parliament imitating this necessarily abortive attempt to run counter to market prices, by an act to regulate the price of butchers' meat. In the year 1532, by the 24 Henry VIII, c. 3, an act which was not repealed till the year 1541, it was declared in "an act concerning flesh to be sold by weight," that all beef, mutton, veal, and pork, should be sold by "haberdepois" weight, and moreover that no person should thereafter take "for any pound weight of flesh of the carcasses of beefe or porke, above the price of an halfpenny, and of mutton or veale above the price of one halfpenny and half farthing," and after endeavouring to enforce these prices by a penalty of 3s. 4d., it gravely continued: "Provided alwaies that the heads, necks, inwards, purtenances, legs, nor feet, shall be counted no part of the carcasses aforesaid, but such to be sold for a lower price."

The Parliament were not content with fixing the price of calves' meat: they even declared what a butcher should not kill; for instance, in 1529, we find in the old statute-books (the 21st Henry VIII.), "An Act against the Killing of Calves" for three years, because, as the framers of the Act gravely inform us, "of late yeeres now passed the breeders of such calves, of their covetous minds, have used to sel their calves young sucking to butchers, weining, rearing, and bringing up few or none, whereby the increase of old cattell is marvellously minished and decreased." A penalty of 6s. 8d. is then imposed upon any one who should kill a calf during the next three years.

As might be reasonably expected, the farmers evidently evaded this act very extensively. But the Legislature was not to be turned aside from their grave resolves; so in 1532, by the Act of the 24th Henry VIII., c. vii., after explaining in its preamble that the act of 1529 was intended to provide "that calves once wained should not be put to slaughter before they were of convenient yeeres and meete for beefe," but that since the last act divers bad persons had continued "to kill young beasts called wainlings, steers, bullocks, and heifares, of one or two yeeres old, or little more," it goes to enact that no person shall, under a penalty of 6s. 8d., cause any cattle to be killed under two years old.

Then, again, the same parliament had evidently discovered another mare's nest; they deemed the increase in the price of mutton to have arisen from the flocks of England having become too large: so, as usual with them, they were prompt in attempting the remedy of an Act of Parliament.

In 1533, therefore, the 25th Henry VIII., c. 13, is an Act entitled, "Concerning the numbero f sheep one should keep. After describing at some length the several enormities that do ensue by the greedy desire of having many sheep—some persons then having 24,000 and 20,000 sheep—" by which a good sheep for victual that was accustomed to be sold for 2s. 4d. or 3s. at most is now sold for 6s., or 4s., or 3s. 4d. at the least," it goes on to enact that no one shall have more than 2,000 sheep in future under a penalty of 3s. 4d. for every sheep above that number. And by sec. 14 of the same act, it is provided that no one shall hold more than two farms; under a penalty of 3s. 4d. per week they shall hold any land contrary to the act.

And the legislature of those days were not content to regulate the number of sheep a farmer should keep, and the price he should obtain for his mutton, but they regulated the trade in his wool. It was not to be exported, or, when it was allowed to be sent out of the kingdom, it was carefully provided that it should be sent only to the staple at Calais. I have not found in the English statute-book any direction as to how he should *shear* his sheep; but the Scotch government early issued directions similar to that of the Irish parliament of 1634.

The public acts of those days inform us that even as late as the seventeenth century the flockmasters of Ireland and Scotland had a summary way of gathering the wool from the sheep, which their rulers were enlightened enough to restrain. Thus, by the act of the Irish parliament (11 and 12 Charles II., c. 15), entitled "An act against plowing by the tail and pulling the wool off living sheep, it is declared that "in many places of this kingdome there hath been a long time used a barbarous custome of ploughing, harrowing, drawing, and working with horses by the tayle, whereby (besides the cruelty used to the beasts) the breed of horses is much impaired in this kingdome. And also divers have, and yet do use the like barbarous custome of pulling off the wool yearly from living sheep, instead of clipping or shearing them." These miserable practices were then declared to be illegal, and to be punishable with fine and imprisonment.

It is evident, however, that there had been a previous Irish ordinance on this subject, since such a reformation is referred to in a letter written to his Scotch council by King James, in 1617. Chambers' (Annals of Scotland, vol. i., p. 471) gives an extract from a curious entry in the Scotch Privy Council Record. The document states that "In some remote and uncivill places of this kingdom an old and barbarous custom was still kept up of *plucking the wool from sheep instead of clipping it*." The king hearing of the practice, wrote a letter to his Council, denouncing it as one not to be suffered; telling them that it had already been reformed in Ireland, under a penalty of a groat on every sheep so used, and was "far less to be endured in you." The Council immediately (March 17, 1617) made an order to the same effect; and after stating that many sheep died in consequence of this cruel treatment, concluded with a threat of severe fines on such as should hereafter continue the practice. "It is remarkable," adds Mr. Chambers, "that in the Faroe Islands there is to this day no other way of taking the wool from sheep than that which was then only kept up in remote parts of Scotland."

It was as early as the year 1337 that we find the exportation of English wool prohibited. The same measure of injustice to the farmer was conferred in 1521. And in 1696 the *wisdom* of Parliament was evinced by the prohibition of the export of wool from England, or even from Ireland into England. It was not till the year 1824 that the Acts of Parliament restraining the exportation of wool were repealed.

The Scotch parliament were by no means to be outdone by that of England; for so late as the year 1581, in the seventh parliament of James VII. of Scotland, it was enacted "That no manner of wool be transported, or put in schippes or boates to be transported, furth of this realm in time cumming." A law had been previously made, in 1467, that no cattle or sheepe should be sold out of the realm of Scotland; and again in 1535, by the fourth parliament of James V. of Scotland, it was directed, with all becoming gravity, "That na manner of men in time cumming sell nolt, sheepe, or other cattle, auld nor young, to ony English-men be himselfe or ony other mediate person, nor have nor send the samin in England to be sauld."

It sounds strange in our ears to read in these Scotch acts the title of "James, by the grace of God, King of Scotland, England, France, and Ireland."

We have seen how, previously to 1634, the Irish were wont to fasten their horses to the plough by their tails; and there is some reason to conclude, from a print in a Saxon manuscript now in the Harleian collection, that our Saxon ancestors did the same. I find no act in the English or Scotch statute-books relating to so barbarous a custom: not but that the Caledonian senate legislated upon the horse; they regulated his shoeing, and restrained his owner from over-feeding him. For in 1477, by the tenth parliament of James III., it was enacted, "because ignorant smithes through ignorance or drunkennesse spillis and enrickis mennes horse," that a smith shoeing a horse in the quick should pay the cost of the horse till he be whole, and furnish the owner with another; and if the horse will not mend, that the smith hold the horse. And in 1581, by the seventh parliament of James VI. of Scotland, "that none under a barron or landed man worth a thousand merks of yearly free rent keep horse at the hard meat after the 15th of May, or take them in before the 15th of October, on pain of forfeiting the horse." And the reason assigned is "that amangis the monie uther occasions of deurth of victuallers, there is ane speciallie very unprofitable to the commonweill, quhilk is the holding of horses at hard meat all the summer season, used commonlie be personnes of mean estaite, cowppers of intention to make merchandise of the said horsis, being for the maist part small nagges, and na horses of service."

The parliament who, in 1533, regulated the number of sheep a farmer should keep, had more enlightened views in regard to the encouragement of the linen manufacturers. They erred strangely, however, when they tried to enforce the cultivation of flax on all soils. It was in 1532 that, by the 24th of Henry VIII. (repealed in 1592 by the 35th Eliz., c. 7), it was enacted, after a well-drawn preamble, setting forth the advantages of encouraging the home manufacture of linen, that every person having arable or pasture land "apt for tillage" should every year for every sixty acres in their possession sow "one rode or one quarter of an acre with line-seed, otherwise called flax-seed or hemp-seed.''

Here, again, the Scotch parliament had long preceded that of England in regulating the husbandman's crops. In 1426, by the fifth parliament of James I. of Scotland, it was enacted that "ilk man tailand with a plauch of aucht oxen sall saw at the least ilk zeir a firlot of quheate, half a firlot of pease, and forty beanes, under the paine of ten shillings to the baronne of the lande that he dwellis in."

When the English Parliament regulated the crops and the prices of the farmer's produce, they proceeded to consider what they deemed the enemies of his growing corn. We find, indeed, that they thought of the crows, for in 1532, by the 24th Henry VIII. c. 10, intituled "An Act for the Destruction of Crows and Rooks," the preamble informs us that "Forasmuch as innumerable numbers of rooks, crows, and choughs do daily breed and increase throughout this realm, which do yearly destroy, devour, and consume a wonderful and marvellous great quantity of corn and grain of all kinds, in the sowing, ripening, and hemelling, and over that a marvellous destruction and decay of the covertures of thatched houses, barns, reeks, stacks, and other such like, to the great damage and undoing of a great number of all the tillers, husbands, and sowers of earth;" it therefore provides that every town and hamlet shall provide crow-nets; and that takers of crows have two-pence a dozen by way of reward. This sage law was repealed in 1576, by the 18th Eliz.. c. 15. It is noticeable that a century before this the Parliament of Scotland had made an onslaught on the poor rooks, for in 1424 was passed an act against the "bigging of Ruikes in Trees," because, as the statute adds, they "dois greate skaith upon cornes."

Straying cattle were not neglected. It might be moreover concluded, from the great minuteness with which the damage done by stray cattle is specified in our old Welsh laws, that either the farmers' fences in those times were generally in a dilapidated state, or that the Welshmen were as litigious then, as sometimes they are supposed to be now. By the laws of Howell Dda, made in the early part of the tenth century, it is provided that, "to release an animal impounded, money payment only is due—a penny for a horse, a half-penny for a bullock, for a colt 14 days old one penny.

Every crop that a person shall harvest he is to look after, and the cattle are free. By the crop is understood corn after it is severed from the land, wherever it grew, the produce of an orchard, cabbage, flax after it is cut, or in a garden uncut, tedded hay, thatch for houses, and their fences, leeks, and everything that pertains to a garden. "Let him fence so strong about his garden that beasts cannot break into it; and if he do not, and it should be broken into, he is not to be compensated; except for the trespass of poultry and geese, because it is not possible to fence, so as to exclude them, since they can fly." Then the law continued: "The barns are to be open from the time the first sheaf is brought into them until the calends of winter, to admit the air; and if the corn be damaged during that period, the owner is to be compensated. From the calends of winter onwards, the barns shall be closed in the manner required: they are to be closed by three eatherings on the sill, and a wattle upon the doorway, with three bands thereon, two on the back, and one on the front; and if that be broken, the corn and the barn are to be compensated, the corn in the barn by giving a whole sheaf for every damaged sheaf." (*Ancient Laws and Institutes*, p. 158.)

Former, and indeed, all subsequent Parliaments, have treated other enemies of growing crops, viz., game, much more gingerly than they did the cattle and the crows. This is shown by their forest and their game laws. The abhorrence of poachers, in fact, amongst the landowners of those iron days, was evidently as great as in our more silken, or cotton times. They took very decisive measures, however, in the 13th century to abate such unqualified destroyers of game. In 1293, by the 21st Edward I., it was enacted, "To the intent that trespassers in forests, chases, parks, and warrens, may more warily fear hereafter to enter and respass in the same than they have heretofore," that they might be *killed* if they refused, on demand, to surrender themselves to the keeper or his assistants. This slaying, however, the statute gravely and humanely provided, must not be done by the keepers out of malice, and merely on the pretence of a trespass.

A century afterwards, we find that even slaying poachers did not stop poaching, for in 1494, 11th Henry VII., c. 17. It was provided, that no one should set "snares, nets, or other engines," to take "fesants or partridges." And a quarter of a century nearer our own time, by another act, that of 1522 (14th and 15th Henry VIII., c. 10), the hares were protected, since it was then rendered felony to kill hares by tracing them in the snow; the fine being 6s. 8d. upon all breakers of the law.

The treatment of the farm labourers in the times of which I am speaking was evidently harsh and unfeeling. They were, indeed, serfs, who only very slowly participated in that freedom for which the Commons of England so long, and at last so successfully struggled. But the state of the poor labourer from the time of which I am speaking down to the days of Henry VIII., was still that of serfdom. Runaway idlers were to be enslaved; sturdy incorrigible beggars might be executed as felons. This unhappy state of the poor labourer in husbandry must be remembered, when we read the harsh statutes by which their work, their wages, and even their dress, was regulated by grave acts of the rude Parliaments of other days. The labourers were then not even allowed to abstain from work when they did not require to be hired; for 1349, 23rd Edward III., by "the statute of Labourers," it was provided, as the preamble states, in consequence of the great pestilence having carried off so many of the plougmen, and labourers having increased their demands for wages, that "every person able of body under the age of 60 years, not having to live upon, being required, shall be bound to serve him that doth require him, or else committed to the gaol until he find surety to serve," at the old wages. And he was not allowed to learn any craft or trade; for in 1388, by the 12th Rich. II., it was ordered, that whosoever served in husbandry until he was twelve years of age, should so continue. The Irish Parliament in 1447 passed an act to the same effect; and in 1425, the Scotch Parliament, to prevent idlers in rural populations, made a law "that ilke man of simple estate that suld be of reason labourers have onther (either) halfe-an-oxe in the pleach, or else delve ilk day seven fute of length and seven of breadth under the paine of ane oxe to the king."

Seldom was the husbandman to have the market value of his labour, for in 1350 by the Act of the 25th Edward III., c. 1, which remained unrepealed until the year 1563 (Eliz. c. 4), it was enacted "That carters, ploughmen, drivers of the plough, sheapheardes, swineheardes, and all other servantes, shall take liveries and wages accustomed the soil twenty yeeres, or four yeeres before (by the previous acts of the same reign), so that in the country where wheat was wont to be given, they shall take for the bushell ten pence, or wheat at the will of the giver, till it is otherwise ordained. And that they be allowed to serve by an whole year, or by the other usual termes, and not by the day. And that none pay in the time of sarcling or heiemaking but a penny the day; and a mower of meadowes for the acre fivepence, or by the day fivepence; and reapers of corn in the first weeke of August twopence, and the second weeke threepence, and so on till the end of August; and less in the country, where less was wont to be given, without meat or drinke or other courtesie to be demanded, given, or taken. And that all workmen bring openly in their hands to the merchant townes their instruments, and there shall be hired in a common place and not privie. Item—That none take for the thrashing of a quarter of wheat or rie over 2½d., and the quarter barlie, beans, peas, and otes 1½d. if so much were wont to be given; and in the country where it is used to reape by certain sheeves, and to thresh by certain bushells, they shall take no more, nor in other manner than was wont the said twenty yeare and before. And that the servants bee sworne two times in the year before lord stewards, bailliffs, and constables of every town, to holde and doe these ordinances. And that none of them go out of the towne where he dwelleth during the winter to serve the summer, if he may serve in the same towne, takeing as before is said. Saving that the people of the counties of Stafford, Lancaster, and Derby, and the people of Craven, and of the marches of Wales and Scotland, and other places may come in the time of August and labour in other counties, and safely return as they were wont to do before this time. And that those who refuse to take such oath, or perform that that they be sworn to, or have taken upon them, shall bee put in the stocks by the said lord stewards or constables, by three dayes or more, or sent to the next gaol, there to remaine till they will justifie themselves. And that stockes be made in every towne by such occation betwixt this and the feast of Pentecost."

By the same statute, threshers, "tyler and other coverers of ferne or strawe, were to have 3d. per day, and their knaves 1d." We might reasonably conclude with such wages there could be little fear of the labourers decking themselves in fine garments; but it seems that the Parliament of that time thought differently, for in 1363, by the 37th of Edward III., it was enacted "That carters, ploughmen, drivers of the plough, oxeherds, kowherds, shepherds, and all other keepers of beasts, threshers of corne, and all manner of people of the estate, of a groome attending to husbandry, and all other people that have not fortie shillings of goods nor chattels, shall not take nor wear no manner of cloth, but blanket and russet wool, of twelve pence, and shall weare the girdles of linnen, according to their estate, and that they come to eate and drinke in the manner pertaineth to them, and not excessively; and it is ordained, that if any weare or doe contrary to any of the points aforesaid, that he shall forfeit against the King all the apparel that he hath so worne against the form of this ordinance." This wise statute was not repealed till the year 1533, 24th Henry VIII., c. 13. The Scotch labourers in husbandry were probably more economical in their dress, for it was not till about a century after this English Act, that the Parliament of Scotland in 1457, resolved "That na labourers nor husbandmen weare on the warke day, bot gray and quhite, and on the halie daie bot light blew, greene, redde; and their wives right swa, and courchies of their awin making, and that it exeeed not the price of xi pennyes the elne. And that na woman cum to Kirk nor mercat with her face mussalled or covered that she may not be kend."

But not only, it seems, did the English peasantry of that time indulge in fine clothes; but they had, it seems, a taste for wearing arms and bucklers, and for certain amusements. As, in 1388 (by the 12 Richard II., c. 4, made at Canterbury), it was enacted that "no servant of husbandrie or labourer shall henceforth wear any buckler, sword, or dagger;.... but such servants shall have bowes and arrowes, and use the same the Sundayes and holy dayes, and leave off playing at tennis or football, and other games, called coytes, dice, casting of the stone, kailes, and other such importune games."

As time wore on—it became necessary to alter in some degree the wages of the rural population and to decide the length of their working hours. So the Parliament again interfered; and in 1513, by the 6 Henry VIII., cap. 3 (repealed very soon, however), the wages of a bailiff were slightly raised to 26s. 8d. per annum, and meat and drink, with 5s. for clothing; and a common farm labourer 16s. 8d., and meat and drink, and 7s. for clothing; but then the labourers of those days were evidently not very fond of their hard work, so it was resolved to try and stimulate them by a section of the Act, in the following words: "And furthermore were divers artificers and labourers retained to work and serve, waste most part of the day and do not deserve their wages, sometimes in late coming to their work, early departing therefrom; long sitting at ther breakefaste, at their dinner, and at their noone meate, and long time of sleeping at afternoone to the losse and hurt (of their masters.)" It then proceeds to enact, that from the middle of March to the middle of September every labourer "Shall bee at worke before five o'clock in the morning, and that he have but half an hour for his breakfast and an hour and a halfe for his dinner, at such time as he hath season for sleepe appointed him by the said statute, and at such time as it is herein appointed that he shall not sleepe; then he to have but an hour for his dinner, and that he depart not from his work till between the hour of seven and eight in the evening." And then the labourer was not to give up his service without due notice to his master. There was no provision, however, against the master suddenly discharging his labourer; but in 1444, by the Act 23 Henry VI., cap. 12, it was ordained that all servants in husbandry should give warning before they left their service, and that the wages of a bailiff should be 24s. 4d. by the yeare, and clothing price of five shillings, with meate and drinke; of a chiefe hind, a carter, or chief shepherd, 20s., and clothing 4s., with meate and drinke; a common servant of husbandry 15s., and clothing 3s. 4d.; a woman servant 10s., and clothing 4s., with meate and drinke."

Long before this time, even as early as the tenth century, the Laws of Wales regulated the Ploughman, placed a value upon his gear, and protected him at his work. One Law says, "There are three common protections: The protection of a session, or court of country; the protection of a place of worship; and the protection of a plough and team at work." — *Ancient Laws and Institutes of Wales*, p. 666.

By another law it was ordained that "the legal value of a yoke and its bows shall be one legal penny, a beam 1d., a coulter 4d., a cleansing hurdle 1d., a cleansing spud 1d., a harrow 1d., a thorn harrow 1d.—*Ibid*, p. 150.

By a third law it was declared that neither horses, mares, or cows were to be put to the plough; and, again, "No one is to undertake the work of a ploughman, unless he know how to make a plough, and nail it; for he ought to make it wholly from the first nail to the last, or from the smallest to the largest.—*Ibid*, p. 156.

The value of domestic animals was also fixed by the ancient laws of the Cymri (*ibid*, p. 128). A foal till fourteen days old was to be deemed worth 4d., afterwards 2s.; at a year, 4s. A working horse that shall draw a car and a harrow, 60 pence; a cow calf, 4d.; of a cow ready to calve, 40 pence; of a steer, 16d; a lamb, 1d.; of a sheep, 4d.; of a sucking pig, 2d.; of a pig, 1s. 3d.; of a kitten, 1d.; of a cat, 2d.; of bees, an old stock, 24 pence; of a 1st swarm, 1s. 4d.; of a "bull-swarm," 1s.; of the 3rd swarm, 8d.

The old Welsh laws also limited the amount of grass land which a farmer should hold, and the trees he should cut down. By one law: "No one except a lord was to have more than two reserves of grass—a field and a meadow (land appropriated for hay only, and enclosed by a fence); and if he will to keep it, let him obtain a cross from the lord; and, under sanction of that, let him keep it." —(*Ant. Laws of Wales*, p. 160). Another declares that there are "three trees that it is not free to cut without the permission of the Countrey and the Lord an acorn tree or oak, and a birch tree, and a witch elm.—(*Ibid*, p. 676.)

The breadth of the ancient roads of our island, as fixed by the ruling powers, indicates the limited extent of the traffic they were then intended to accommodate. One law declared that "The measure of a lawfull road is a fathom and a-half (9 feet); of a bye road, seven feet. Every habitation ought to have two footpaths, one to its church and one to its watering place."

I have continued my notices of these legislative interferences with the farmer and the labourer down to the time of Grotehead, Fitzherbert, and Henry the Eighth. Before their age there were no English writings on agriculture that can give us any material information with regard to the practice of our early husbandry. (Of Grotehead and Fitzherbert, I shall speak in a subsequent paper.) Those doings of our early Parliaments, which I have been endeavouring to trace, do not give us, it is true, a very elevated opinion of either the state of the tillers of the soil in the olden times of England, or of the wisdom of their Parliaments. These, however, yield us, not only considerable information with regard to some of the practices and habits of farmers at a distant period; but, moreover, they may well serve to warn the Parliaments of after and more enlightened times that the less the agriculturists of England are interfered with by Acts of Parliament, the better it will be for their prosperity, and that of the country they so admirably cultivate.

THE FARMERS' CLUBS.—OPENING OF THE SEASON.

No sooner has the curtain fallen on the Autumn meetings of the local Agricultural Societies, than it is almost immediately rung up again. The prompter barely gives his company time to fresh-set their wigs and their faces, but he has them once more before the public. It is true, we have a week or two yet to wait ere the Christmas fine sights fairly set in. But in the interim the audience are by no means allowed to yawn, grumble, scrape their feet, or otherwise manifest their indifference or impatience. The great aim is still to keep them amused, or at any rate employed; and with this laudable object many a man shifts his part and answers to his second call in an instant. The breeding stock exhibitions may be over, and the ploughing matches decided. The legitimate five-act play, with all its diversity of action and contrast of character, has been duly followed through, and we turn to the other side of our bill, to see what is to be the interlude. The tale is still one of rural life, although a scene or so of it may be laid in the metropolis. The moral, too, should be equally good, pointing as it does perhaps yet more directly to the force of the old fable, of how Fortune smiles on those who strive to help themselves.

During the first fortnight of our first winter month this change in the performances has been very noticeable. As the meetings of the Societies died out, those of the Clubs came on. The Central Club re-opened the Session, in Bridge-street, on the first Monday in November, and the Oxford Club followed on the Wednesday. In the next week we have the new Club at Ipswich celebrating its establishment, and another far better known one in Suffolk, the Hadleigh, pursuing its useful career. As a rule, there is a very distinctive line to be drawn between the operation of a local society and a club. The latter is coming more and more to be considered the means for encouraging some profitable talk on matters agricultural; whereas the former would appear, alas! to depend less and less upon anything of the kind. No doubt the continued success of the discussion meetings of the London Club has acted as something of an example to other similar institutions; and a farmers' club is now seldom projected but with this as one of its main features. Still, "the London farmers" hardly began with their accustomed strength, and about the most remarkable point in the debate in no ways referred to the subject selected for the business of the evening. Many of our subscribers will probably have already noticed that the chairman, Mr. Thomas, in opening the meeting, expressed his regret at not being able to congratulate his brother-farmers on their position, "believing as he did that the corn crops would be found deficient both in quality and quantity;" whereas, Mr. Marshall commenced reading his paper with an expression of "sincere and heartfelt gratitude to Providence for the blessing bestowed by a most abundant and productive harvest." One of our "readers," with his usual care, actually queried the two passages in his proof, questioning whether the reporter must not have made some serious mistake as to what one or the other could have really said.

The Ipswich Club, again, which has now just held its first annual meeting, is more to be congratulated on the strength of its support than for any great display of it on this occasion. The Club has quarterly gatherings—three for discussions, and the fourth "of a more social and general character," or, in other words, a dinner. This would seem to have had the common fate of agricultural dinners; that is, the greater part of what was said was said by those who had little or no practical acquaintance with agriculture. The Ipswich Club, for what reason we know not, takes one of the county members for its Chairman. Surely the Chairman of a working Farmers' Club should be himself a farmer, or the very character of the thing is impaired. However, Sir Fitzroy Kelly being pressed to preside, kindly consented to do so; and Sir Fitzroy is one of those able men, whose very profession it is to be able to talk about anything. So, Sir Fitzroy, having duly prepared himself, spoke to the length of some two or three columns, all about farming in general, and the Ipswich Farmers' Club in particular—admitting everynow and then, as he did so, that he did'nt know much about it, and treading so closely at times on the non-political line as to make many of his hearers uneasy and others unruly. But the great object is achieved. Sir Fitzroy's address even gets into the London papers, and the Ipswich Club, as a consequence, merges into Sir Fitzroy Kelly; while Judges, Exhibitors, Committee-men, and others must come to be content with a few words or a few lines each; for there really is not time or room for them to say more. If the Ipswich Farmers' Club is to live on as a farmers' club, it must read a little more business-like than this, especially when it has members who can "deal as largely and practically with the subject" as Mr. Bond, —or who can deliver "an able speech," like Mr. Biddell—" or respond in the "well-known happy style" of Mr. Allen Ransome—who all get burked by their own county Press, though the president is flourishing away for the hour together.

Certainly, so far, the best of such discussions as there have been was that at the Oxford Club, where the practical men have it all to themselves. Here they judiciously faced one of the greatest difficulties the farmers have lately had to contend against, while the remembrance of it was fresh upon them. However the yield may really turn out, whether we shall have to rejoice with Mr. Marshall in Lincolnshire, or mourn with Mr. Thomas at Bedford, it may be quite as well to look to what the harvesting of this enigmatical crop may cost. Even at the best, can we afford again to pay a guinea or thirty shillings an acre for cutting? Very wisely, then, the members of the Oxford Farmers' Club have taken up the question of "the Agricultural Labour Market." They have not moreover, even yet, done with it; for the further consideration of the matter stands adjourned to the December Meeting of the Society. Let us, however, thus early avail ourselves of a word or two of what was said. Mr. Mein, who introduced the subject, thought "many collateral circumstances had occurred these few years past to make the scarcity of agricultural labour felt so much at harvest, viz., by the high condition the land generally is now kept in, whereby heavier crops are grown; consequently the same number of men cannot cut and carry it in the same time; one man cannot cut, pitch, or load so much per day; therefore one reason why better prices are requisite. Again, the two last harvests have been unusually hot; consequently the men could not work so many hours. He had seen it written that this season men were in the field from daylight to sunset. So they might; but in no harvest have they been able to work so short hours, and compelled to rest at so short intervals, owing to the heat of the last two seasons. Again, seeding is commenced so much sooner than it used to be, so much being sown in February now; and we must bear in mind that corn sown at intervals of three weeks in February and March ripens much nearer together than if sown at the same intervals in April and May, or, in other words, whatever interval you give it in sowing in April and May, it will ripen at nearly the same distance apart. Not so in the early planting: thereby so much of our harvest comes together. Again, there is less spring wheat sown; and more winter beans. The earlier the harvest (in reason) the better for the farmer, and the cheaper it is done if we can only get the hands to cut and carry it."

Then, as to the remedy, "we must improve the condition of the agricultural labourers generally in their dwellings, by giving them more regular employment during the winter, and giving them better wages; because it resolves itself into this question, Whether a farmer upon 300 or 400 acres had better spend £80 to £100 more in labour during the season, or lose £150 to £200 at harvest in shed and damaged corn? Able-bodied labourers have got tired of being offered the Union for the winter, and it is well known that they cannot subsist without work."

And for another means "we should give the labourers more task work, and allow them to earn fair prices at it. If a man can earn 14s. in five days, so much the better; if the sixth is a wet one he can afford to lie idle, or stay at home and repair his children's shoes or clothes; and five days are as many dry days as we can count upon in the week during the winter months. In using the reaping machines, a very good method, and one adopted by some last harvest, is to find the machine and horses, and let the cutting, tying, stocking, &c., of the corn per acre, giving them good prices; because if there are pieces of the field so much laid that the machine will not work it, they will require to use the hook; but it is certainly discouraging to see one party of men getting the cutting of the standing-up corn by contract by machine, and another party called in to cut the laid corn by hook—what they could not manage; certainly sufficient to make labourers discontented." We lack the space to follow Mr. Mein, who, however he might lament the scarcity of labour, never for a moment disputed the necessity for it. The concluding words of his paper are these: "I have one regret—had I my steps of the last twelve years to retrace I would spend double the money in labour. The more I spent in labour the better my farm paid me." Mr. Williams, of Northcourt, and other speakers, declared themselves to the same effect; but although well handled so far, there is a great deal more to come of the discussion, and we shall look with some interest to what is said in December. We are, indeed, inclined to think that it is a question that might be taken up with every advantage in different parts of the country, and that the Central Club may do well to place it on their New Year's card. Incidentally, there is a deal of "stuff" in such a text-word; and the uses of machinery, and perhaps of the reapers more particularly, could only be argued with some good effect. It is surely for facing such difficulties as these that farmers' clubs were invented.

THE ECONOMIC WINTERING OF YOUNG STOCK.

Of all the departments of management connected with the breeding of cattle, few give the breeder so much anxiety as the rearing and subsequent care of his young stock. This is peculiarly the case in districts not altogether applicable to breeding purposes, and yet cannot well be appropriated to better uses: I mean those districts having grass lands not adapted for fattening, or such as those where the water is impure, or the climate is fickle and unsuited to young stock; or again, undrained clayey soils possessing much swampy lairage, or poor marshy, sandy, or moory soils—these are not the precise localities I would choose for feeding and rearing young stock in. But can they be better or more profitably managed? The occupiers of dry, gravelly, stony, or sandy lands, having pure water at command, know nothing of the difficulties experienced by breeders in those districts named. Theirs is a truly difficult position, and it is to them I would first offer a word of advice and caution. I have often asserted that young cattle well reared are half-wintered. This is the main point after all. If young cattle come into the fold-yard or hovel fresh and healthy, it is not a little stormy and cold weather, or a less nutritious food, that will soon harm them. Every attention must be given to achieve this most desirable end. If the pastures are too succulent, or water bad, or any other hindrance to their well-doing is perceived during the summer or autumn, they should be taken into the yards or hovels, and fed with such proper food as the breeder may possess, and in such proportions as his best judgment dictates. They must, if possible, be kept in a thriving condition. These remarks do not apply much to the occupiers of real breeding farms; they have for the most part merely to turn out the young calves into the customary fields, and if they fail to do well, it is quite exceptional. Dry and shady fields, pure water, and sweet sound herbage do it all.

Commencement of the Winter Management.—If the season is dry and mild, young cattle will thrive well in the fields to a late period, often till the month of December. In a season like the present, when we have been visited with a very intense frost so early in the month of October, much damage has, of course, been done. Young cattle cannot endure cold rimy frosts for any length of time: it causes hoose and scouring, and many are the complaints already made throughout the country of the prevalence of these disorders. I have lately lost one yearling myself, although taken up to dry food, *i. e.*, hay, corn, and cake, as soon as its state was perceived, and I have four others suffering from like causes. The loss of condition in a short time is often surprising. My usual remedy is the change of food as above, dry warm lair, and a few doses of thick wheaten-flour gruel, with a little laudanum in each. The issue is very precarious; I always think it a poor prospect, when I am obliged to resort to medicinal treatment for any field animal. I am, however, wandering from my subject—*the economic wintering of young stock.*

Young stock should as a rule be safely housed in warm sheltered yards before cold or frosty weather sets in; the youngest and most delicate must be provided for in covered hovels, airy, but well shut-in. Warmth to a young animal is equal to a moderate supply of food. The stronger animals may do well in the yards, provided the yards be warm, and have open hovels for them to retire to in wet and stormy weather. I do not name any particular time for taking them up. That must depend upon the season, but depend upon it, the breeder will rue if the young animals are caught in the fields by a severe frost, or a snow-storm, &c., &c. It is now, however, high time that all should be safely sheltered. The month of November upon the average of seasons is too late and too hazardous for young stock "to be a-field." I take it for granted, then, that all are in. The great question arises: How are they to be best and most profitably wintered? There probably is no better way to promote condition and healthiness than to feed them on good well-got meadow hay, and to give with it a moderate allowance of cake. This will ensure progress and a healthy constitution; but it is an expensive course, and one which but few comparatively are disposed to follow up. On arable farms it cannot be done. Hay is a very scarce article of food, and is greatly husbanded; clover-hay, rye-grass-hay, sainfoin, and the like more abound, but neither is so well qualified for food for these youngsters.

We must, therefore, resort to various substitutes. The first I would name as a good and economical food is this :

Pulped Mangolds, Cut Chaff, and Oilcake.—The mangolds should be pulped about thirty-six to forty-eight hours before the pulp is required for use, and it should be laid in separate heaps for successional service, and in order that it may undergo the requisite amount of fermentation to change its character and convert it into truly nutritious food. When fermentation is sufficiently advanced—*i. e.*, when the heap becomes really warm—it may be mixed with finely-cut chaff, cut from oat, barley, pea, or even wheat straw (if a little hay could be spared to be cut and mingled with it, all the better), and in a few hours it will be fit for use, when it should be given sparingly in clean troughs. A small quantity of cake not exceeding two pounds' weight per day to be given after the evening feed. This process of feeding will require careful attention, as the food itself, the troughs, the scuttles, cribs, &c., soon become tainted, which of course makes the food unpalatable. Water should not be too freely supplied. This was my own course last winter with the older calves of my own rearing, amounting to about nineteen, and I have every reason to be satisfied with the result. Ten of them are thriving steers, and the heifers are almost ready for the bull. I might also add that few farms are less adapted for the breeding of cattle than mine ; the grass is of a quick and much too succulent growth, and the water is brack and often stagnant, much better adapted for sheep than cattle. I fare no better with purchased cattle, so I continue to breed, as the least evil of the two, and almost as a necessity, for I feel it requisite to combine young cattle with my sheep, in grazing, to keep my pastures right. Another plan is to slice the Swedish turnip, and give about one bushel per day, divided into three equal feeds, for morning, noon, and night; cut chaff twice, and hay for a "suppering-up." Pulped Swedish turnips I do not find equal to pulped mangolds. Good cake is a great aid to the well-being of all young stock, and on no account would I attempt to bring them through the winter without a moderate supply daily; with roots it is indispensable. The common white-fleshed turnip, when well grown and sliced, is excellent food in the early winter, and if a quantity of the leaves could be given along with the bulbs, all the better; the leaves promote the sounder and freer growth of the bone in all young animals. With this kind of food a little barley or oats should be daily given : of course, cut chaff or hay, or even a great and superabundance of good straw for the young stock to browse over, is to be included as food. Roots will never do alone; in all cases dry cereal food is desirable, if not absolutely necessary. Much has been written about the necessity of exercise for young animals. It certainly does appear to be right, if not necessary, to promote growth and vigour. It is, however, surprising to see how well these young animals thrive, although tied up by the neck, and well fed for several months together. I have always advocated either loose boxes or a run out daily, but my experience rather tends the other way ; the run out makes them restless on being tied up again ; the loose boxes give the stronger animal the best chance. The continuous tying up gives to each its own proper share of whatever food is administered, and keeps the stalls cleaner. Taking all into consideration, I prefer the plan of tying up, with an occasional run into the adjoining yard in suitable weather. I am well aware that with our first-class breeders it is a principal object to bring the animal to maturity at a very early age, and not unfrequently we see them brought to great perfection at the age of two years. I also know that this practice is obtaining great favour very generally ; but I doubt much if this method of breeding and forcing is truly the best. If the breeder's object is twofold—*i. e.*, to fat his animal and making good manure—why I have not much to say against it. I am attempting to suggest some cheaper and safer way of rearing and wintering these young animals for market as stores ; if I have done so in any degree, I am well satisfied.

THE LOIS WEEDON SYSTEM OF HUSBANDRY.—ITS IMPORTANCE TO THE FARMER.

A few numbers back a review appeared in this journal of a work on the Tullian system of husbandry, as revived and illustrated in the practice of the Rev. Samuel Smith, of Lois Weedon, Northamptonshire, despite the ridicule and abuse of those who, like the late Sir William Curtis, are "quite satisfied with things as they are." This gentleman has now given the system a trial of twelve consecutive years, during which, without a particle of manure, he has grown wheat, year after year, upon half the land, reaping an average produce of thirty-five bushels per acre. The method of Mr. Smith is well known to our readers; the land having been kept open by the spade to a subsoil depth, three rows of wheat are planted or drilled, at one foot distance between the rows, of course occupying three feet. The next three feet of land being left vacant, three more rows are planted on the other side of the void spaces, and so on throughout the whole field. One great point in this husbandry is, keeping the intervening fallows well tilled with the spade, and clear of weeds, during the growth of the crops upon the planted parts, and using the horse hoe freely between the rows of growing corn. As soon as this is reaped, the vacant spaces are at once planted ; and so on, year after year, without any change of crops, application of manure, or cessation in the course.

It is not a little remarkable, that after all the efforts that have been made, with the aid of modern science, capital, and skill, to raise the fertility of the earth to the highest pitch it is capable of—after all the money expended in the manufacture and purchase of manure, in order to draw from the soil the greatest possible amount of produce—after the publication of innumerable books to prove that if you put nothing into the land you cannot expect to obtain anything out of it, and that for every cereal crop of grain grown, it is necessary to compensate the soil for the loss of elementary matters by a fresh supply in the form of manure;—it is, we say, remarkable that we are called upon, in the very zenith of our agricultural glory, to retrace our steps, and revert to the practice of a speculator, who, a century and a half ago, started a principle upon which, if true, the restoration of the fertility of the soil is based. Namely, that the atmosphere alone contains an abundant and everlasting supply of all the elements of fertility necessary for the growth and sustenance of plants.

This perfect competency of the atmosphere to furnish a supply of food for plants must be accompanied with an attractive power in the soil itself to absorb and modify these substances, and thus reduce them to a form in which their assimilation by the plants is promoted. On no other principle can a result so contrary to all the hitherto-received opinions and practice of agriculturists be accounted for. Every modern writer on agriculture, whether scientific or purely practical, has maintained the necessity of a constant application of manure, in order to compensate the soil for the exhaustion of a cereal crop. It is for this purpose that herds of cattle and flocks of sheep are kept on our farms, it being almost universally asserted by farmers that they only repay the expense of their maintenance by the manure they produce, by which the produce of cereal crops is increased. Without absolutely endorsing this assertion, we may safely assume, from all experience, that, on the present system of farming, it would be impossible to grow corn profitably without manure; and that a constant succession of cereal crops, without it, would exhaust the most fertile soil in the world. We must therefore conclude that the secret of the success of the Lois Weedon system, which is a copy of Tull's, lies in the constant stirring of the soil under fallow, in order to promote the absorption of the elements of fertility. And, moreover, the proportion of that success depends upon the degree and the depth to which the soil is stirred and comminuted. A remarkable corroboration of this opinion has occurred during the present season on the land laid down with Halkett's guideway-cultivator, at Wandsworth. This land had been deeply subsoiled, and comminuted with the Norwegian harrow, and planted with potatoes, without manure. On each side of it the land was tilled in the common way, and also planted with potatoes. The latter produced one bushel per rod; but the former yielded 2½ bushels per rod, being an excess over the other of 240 bushels per acre. This amounts to 7½ tons, which, at £5 per ton, is £37 10s. A similar result is obtained by Mr. Smith's spade-husbandry over that of the plough, as practised by seven other experimenters on the Tullian system. Their average produce was 24 bushels 3 pecks per acre, whilst Mr. Smith's was 35 bushels. Their highest produce, also, was 27½ bushels per acre, whilst Mr. Smith's was 40 bushels. It is further worthy of observation that this system is so far from impoverishing the soil, that it seems to improve it; and that the produce, after twelve consecutive years' trial, has increased rather than diminished, that of 1858 being 40 bushels per acre. This is a very remarkable feature in the system, as it demonstrates the fact that tillage alone, by stimulating the soil and promoting the absorption of elementary matters from the atmosphere, is sufficient to sustain its fertility.

It is evident that if the Lois Weedon or Tullian system is what it has been represented to be—and there is not the slightest reason to suppose that any deception or misrepresentation has been practised—the expense of farming upon it must be much less, and the profit much greater, than on the common system. Accordingly we find that whilst the profit upon a four-course rotation, according to Bayldon ("On Rents and Tillages"), does not exceed £1 5s. 3d. per acre per annum, that of the Tullian system is £4 2s. per acre per annum; being in excess of the other of £2 16s. 9d., or considerably more than double. This, too, is under plough culture; but Mr. Smith's spade culture is still more profitable: for whilst the average produce is 35 bushels per acre, which at 7s. per bushel (Mr. Smith's estimate) is £12 5s., his expenses amount to only £6 0s. 4½d., leaving a balance of £6 4s. 7½d. per acre, without reckoning the straw, which, as no manure is required, may be sold, to increase still more the profit.

The question, then, remains to be solved—can this system, which is so profitable on a small scale, be made applicable on a large one with an equally favourable result? We see no reason whatever to doubt the facts that are stated in the work we have referred to, derived as they are from sources beyond the suspicion of deception, and corroborating each other. It is a pity that the subject is not taken up seriously by the Royal Agricultural Society or the Central Farmers' Club, and experiments on a large scale instituted, in order to bring the system at once to the test as the most useful and profitable to the farmer, and consequently to the public.

There is one other question involved in these experiments, we think, worthy of notice—namely, whether manures do not act more *indirectly* as stimulants and absorbents of the alimentary matters in the atmosphere than *directly* as fertilizers *per se?* We know the affinity of many chemical substances, which causes them to unite when placed in juxta-position. Thus common salt, if placed on a reeking dunghill, or on any substance emitting ammoniacal matters, will be found to effervesce strongly. This is caused by the absorption of the ammonia; and it will continue until the salt is supersaturated, when it ceases, and the union thus formed is nothing less than the sal-ammoniac of the chemist. This is a subject worthy of the attention of the scientific farmer, who will know how to turn it to his advantage, by applying the principle to his everyday practice.

THE IMPLEMENT TRADE AT THE CAPE OF GOOD HOPE.

The energy of an Englishman is an old story. Crowded, crossed, and jostled though he may be at every step, if a point is to be attained he is seldom satisfied ere he reaches it. If a living is to be made on the old approved fashion, he will make it; or if not, he strikes out a new one. In no other people is the spirit of commercial enterprise so strongly developed. They deal and trade, they oppose and outsell each other, as long as there is a chance or an opening left. And, then, when nothing more is to be done here, they seek other shores and other markets for the employment of their capital and industry. They are continually breaking up fresh ground, and yet as eagerly craving for some still further opportunity. In one quarter of the world the briefless barrister of the Courts is himself wielding the axe and shovel in his very practical plan of seeking a fortune. In another the half-pay officer is hunting the elephant for his tusks, or a duly organized Company tracking the beaver for his skin. The more successful of our home traders are by no means content with what they may do in so comparatively limited a circle; and while Mr. Bass is pushing his pale ale business in the Indies, the agent of Professor Holloway is inscribing the virtues of his ointment and the powers of his pills on the pyramids of Egypt.

Even the agriculturist is allowed to be gradually assuming to himself more and more of the national character. He is especially intent just now on making the most of it, and turning every available offer to some account. In accordance, too, with so approved a precedent, when his own market gets a little dull or overdone, he looks out for another. And, like his fellow-traders, if he care to provide for it, he need not look in vain. Brother Jonathan and his first cousin in the Colonies will buy his Shorthorns and Herefords at their hundreds or thousands each. The Emperor of the French will go to we hardly dare say how much a pound for his Southdown mutton, and Yorkshiremen have audience with the crowned heads of other countries by the favour of a Cleveland stallion or a famous charger. The Esterhazys, and such leviathan cultivators of the Continent, have become as accredited purchasers of our prize implements; while Boydell's traction-engine winds its way through the sugar-fields of Cuba; and Crosskill's clod-crusher is in work on the plains of Athens. Despite, however, these many new openings, it is very evident, after all, that the easiest and safest of introductions should be to our own friends and relations. There is no doubt, either, that these are generally the outlets we are the most ready to avail ourselves of. At this very time Australia would seem to promise by the arrival of almost every mail to become a better and better customer for both agricultural stock and agricultural machinery. We are in no way disposed to say that the means are not taken to meet this demand. On the contrary, we believe that both breeders and manufacturers are paying a great deal of anxious and proper attention to its supply. But, curiously enough, in our desire to "make a connection" thus distant, we appear to have quite overlooked other marts for our merchandise much nearer home. We use, as we shall show, the term merchandize advisedly; for it is the trader rather than the farmer who has neglected to make the most of his opportunity.

In the middle of last month the great Agricultural Society of the Cape of Good Hope held its annual exhibition at Cape Town. As with us, it was a show of both stock and implements, imported cattle and sheep valued at upwards of a thousand pounds being entered. Considering the prices at which animals leave England, this is not perhaps saying much. The display of machinery was more imposing, and estimated at least at four times the sum of that of the beasts. That is to say, there were four thousand pounds' worth of implements on the ground for the Cape farmers to pick and choose from. Amongst these there were no less than *forty-two* varieties of ploughs; and we can picture the colonists going through the old controversy of Howard, Ransome, or Hornsby; or Hornsby, Ransome, and Howard—Page, Ball, or Busby; Busby, Ball, and Page. We might even go so far as to imagine that the several representatives of these houses could have been spared for so agreeable an autumn trip, and that Mr. Sutton, Mr. Barrett, and Mr. Cole were on the scene, politely distributing their catalogues, and descanting on the premiums they had taken, and the wonders they had done. Alas! however, it is too well known that some of the finest flights of our poets, and some of the grandest efforts of our artists, have been to depict their heroes in actions that they really never took a part in. And so would it be with our pæan over what Grantham, Ipswich, or Bedford did at the Cape Town ploughing match—for there was not one of them there. Of these forty-two varieties of ploughs for the English colonists to purchase, every one of them was of American manufacture. In the whole four thousand pounds' worth of machinery there was scarcely anything whatever of English make. There were English horses of course, for the breeders out there are beginning to take to them very warmly at last, and, as we have already heard, there were English cattle and English sheep. But with all our knowledge of business, our different plans of pushing a trade, and more than this, with all our fierce opposition one to the other here at home, there was not an English plough on the ground! We begin to fear we shall yet have to qualify what we set out with, about there being no people so strongly imbued with the spirit of commercial enterprise, and to put America before them. It is almost incomprehensible how they can have so much anticipated us in this direction; for if it was worth the while of the United States to send forty-two sorts of ploughs, it might certainly have been worth the attention of the United Kingdom to send a few. We can, indeed, very readily echo the commentary of the Judges on making their awards, and "the surprise they expressed at seeing English manufacturers so badly represented."

Surely, this is a matter worth looking to. With some of our best blood to go on, the Americans already declare that they shall soon "grow" better Shorthorns than we can. Their horses, by the same system, are often equal to our own, as it is. The first favourite for the Derby at this very time is a colt brought over by Mr. Ten Broeck; and a Yankee pugilist is coming to fight our man for the Championship. In some descriptions of machinery even, we only follow their lead, and the best of our reapers and mowers are either invented or improved upon by Americans. But they are too 'cute a people to slight any hint or wrinkle they might take from us. At the Agricultural Fair held at New York, just about the same time as this meeting at the Cape, the entries for implements were kept open to the very day previous to the show, with the especial view of allowing strangers every opportunity for attending. We gave the time and place of this gathering, one generally known as that of the American Institute, in our List of Meetings to come. We have not yet heard how it was responded to; but in due course we shall have the report from our own correspondent in those parts. There is, at any rate, scarcely a celebration of the kind on this side of the water but a Transatlantic friend has some new discovery to show us; or, armed with a pencil and a letter of introduction, something "to remember to remember" when he gets home again.

It must not either be supposed that all our leading manufacturers are as much above, or simply as indifferent to the Cape market as our implement makers appear to be. It is only during this very week that we see that "the Messrs. Hawthorne, the celebrated engine-builders of Newcastle-on-Tyne, have just completed the first of a batch of eight locomotive engines which they have been commissioned to make for the railway at the Cape of Good Hope, the first sod of which was recently cut by Sir G. Grey. This engine has been making trial trips on the Newcastle and Carlisle Railway line, and it is built on a new principle," and so on. Might it not be worth the while of other celebrated engine-builders to ascertain what is wanted at the Cape? An agricultural meeting at this date rarely depends upon ploughs only, and there are all kinds of inventions which the Cape farmers might patronize if they only had the chance of doing so. We have been rather inclined to pride ourselves for some time past on having as a whole by far the best collection of agricultural machinery of any people in the world. We hold somewhat to this opinion still, and are so unwilling to see ourselves "cut out" in any quarter, but more especially amongst our own kith and kin. Depend upon it, if it will pay American houses to send forty specimens of ploughs to a Cape show, it might answer the purpose of an English firm to try a bout with them.

A CHAT ABOUT WINE.

Last month we had a few words to say upon water: we now propose turning to wine. Wine and water do not commingle well; at least they are better kept separate. The subject is forced upon our attention by the controversial discussion provoked in the daily journals, by those who favour and those who oppose the use of stimulants.

We are not about to enter into this dispute, because we believe common sense has long since carried the day in these controversial arguments, and experience has shown that it is utterly impossible to legislate stringently with effect upon this matter of the use of stimulants. Whenever and wherever it has been taken up with the strong hand of the law to legislate for the sale of strong drinks, with the view of suppressing excess, or to put a stop to liberty of action, more harm has been done than good.

Not that we deprecate the honesty or good motives of those who strive to check the baneful evils of drunkenness, for we believe they are actuated for the most part by pure, right-minded, and disinterested principles; but the teachings of chemistry tell us that man requires, and more especially in northern climates, a daily supply of carbon as well as of nitrogen. It matters little whether fermented drinks are presented in the shape of beer, wine, or ardent spirits: the active principle in all alike is alcohol, which exists in variable proportions in each, and to a great extent they not only stimulate and invigorate, but they also partake of the exhilarating and soothing, hunger-stilling, and waste-retarding effects of tea.

"If wine is poison, so is tea,
Only in another shape;
What matters whether we be killed
By canister or grape?"

The moderate use of fermented drinks not only gains favour from the long usage of society, but we have also the authority of Holy Writ, which says, "Go thy way, eat thy bread with joy, and drink thy wine with a merry heart."

And in the words of the Bacchanalian song—

"In wine, mighty wine, many comforts I spy;
If you doubt what I say, take a bumper and try."

But it ought to be good wine—a very scarce article now-a-days, mainly because the manufacture and consumption of wine are kept down by the high price and duty charged; our consumption yearly seldom rising above 7,000,000 gallons a year, or about a gallon to every four souls, while in the commencement of the century it was as high as one gallon to every two persons of the population. But there was more hard drinking in those days, and the wines were of a different character. Cape wines were unknown, and the light French wines but little drunk.

Jerupiga, arrope, logwood, and other adulteratives were then not part of the stock-in-trade of the wine-dealer, although the wines may have been more highly brandied. But education and civilization, a better class of amusements, the extension of the press, and other causes, are improving greatly the social and moral condition of the people; although it cannot be denied that ardent spirits are too much indulged in now by many of the lower classes. The remedy for this will be found in improved dwellings and houses for the working classes, and more free or cheap instructive evening amusements.

There are two articles among our foreign imports—"liquorice paste" and "liquorice juice"—which yield a revenue to the Crown of £9,000 to £10,000 a-year. The large quantity of 500 tons of these consumed annually can scarcely be all for lozenges and black draughts; and it is said that there is a great demand for it in the manufacture of "fine crusted port," and in the brewing of porter and stout. How true this may be we will not undertake to assert.

We are not about to treat at all of the ordinary wines of commerce, which may form a subject another time. We propose now merely to give a running commentary upon some of those simple vinous beverages which find favour among the inhabitants of other countries, and are quite unknown here. The enumeration will serve at least to show how wide-spread is the love of pleasant drinks among savage and civilized. A beverage called "chica de mirtilla" is obtained in Chile, from a species of myrtle berries, probably the *Laurus caustina*. These are about the size of a large pea, of a deep red colour, and of a peculiarly sweet and delicious aromatic flavour. They are prepared by crushing them in water, and allowing them to ferment for a few days. The Indians of South America make a pleasant sub-acid drink called "mistan," by boiling a quantity of roasted ripe plantains, which, after being reduced to a pulp, are allowed to ferment for several days. In the months of February and March the Australian aborigines prepare a luscious drink from the locap, a sweet exudation from the leaf of the mallee. In Abyssinia his Shoan Majesty has tedge, or honey wine, prepared for him, even as metheglin or mead was held in repute in olden times.

An old French author speaks in warm terms of praise of the maby, an Indian beverage, which he describes as a red wine, superior to the best perry of Normandy. It is thus made: Into thirty quarts of water are put two of clarified syrup, twelve red sweet potatoes (*Batatas edulis*), and as many oranges, cut into quarters. The mixture is then allowed to ferment about thirty hours.

Orange wine might be made a profitable article of export in the West Indies, Brazil, Africa, the East Indies, and other tropical regions, where the fruit is left to rot. A Sardinian pure orange wine—a valuable novelty, prepared by P. Gavassini, of Genoa, solely from oranges that would otherwise be wasted—was rewarded with a prize-medal at the Exhibition in 1851. It was reported on by the Jury as a remarkably agreeable beverage, strongly resembling fine Lunel, in flavour, aroma, and quality. Much might be said upon the manufacture of sweet or home-made wines in this country, which is, comparatively speaking, little attended to, except by a few manufacturers.

An excellent cider beverage may be obtained from the juice of the pine-apple by fermentation. Old Ligon, the early historian of Barbados, writing in 1657, speaks in raptures of it:

"The last and best sort of drinke that this island or the world affords, is," says he, "the incomparable wine of pines, and is certainly the nectar which the gods drunke; for on earth there is none like it; and that is made of the pine-juice of the fruit itself, without commixture of water or any other creature, having in itselfe a naturall compound of all tastes excellent that the world can yield. This drink is too pure to keep long; in three or four dayes it will be fine; 'tis made by pressing the fruit, and strayning the liquor, and it is kept in bottles."

In Mexico, a most nourishing and refreshing beverage known as *tepaché*, is compounded of pine-apple juice, parched corn, and sugar.

The fresh sap of the maguey, or large American aloe, known as aguamiel, is often drunk unprepared, and much relished as a delightful beverage; but it is usually fermented, and made into the stronger drink called "pulque," which best suits the Spanish taste in Mexico. The sap of the *Bromelia Pinguin*, when properly prepared and allowed to ferment, makes a pleasant drink, which is considered little inferior to ordinary champagne.

The fermented juice of the sugar-cane contains chemically the same alcoholic principles as the apple, the pear, and the grape. In Normandy, in order to obtain good cider from different kinds of apples, it is customary to leave them in a garret for a certain time. So if the canes are left to themselves, after eight or ten days, they assume the same vinous smell as apples, and if used in that stage would produce a cider beverage. But at the end of about twelve days the canes will be in a fit state to produce wine. They must be pressed in a mill, and the juice received into a cask partially open at the top, and little exposed to the air. After being left for some time, that the fermentation may proceed, it can be bottled, and will in a short time sparkle and pop like champagne. The longer the wine remains in bottle, if well secured, the more it will improve, until it becomes exquisite. By adding to the must or sweet wine the juice of some fruit—such as the pineapple, orange, lime, guava, or mammy-sapota—a wine is obtained possessing the aroma and flavour of the fruit employed; or advantage may be taken of the perfume of the pomerose, granadilla-flowers, or orange-flowers, &c., to obtain scented wines. It may also be coloured red with the juice of the cactus fruit, or prickly pear.

It is thus seen that Nature, very far from having deprived the torrid zone of fruits and plants adapted to the production of an agreeable vinous drink, capable of alleviating the thirst which is felt by the inhabitants of those burning countries, has enriched it with several, especially the cane, which presents in its sugar the purest aliment, and in its fermented juice the most abundant source of a wholesome drink. The cane lends itself to every taste; like the apple or grape, it is made optionally to yield cider, wine, or brandy.

MALT WINE.

Sir,—In often reviewing your excellent medium of public information, containing so many valuable remarks on the various improvements in agricultural implements and tillage of the soil, I feel surprised to find in it so few substantial practical suggestions how to hit upon some improved method to extend the *sale* of the *produce* of the *soil*. Now, in this manufacturing district, by our ingenuity, industry, improved machinery, free open markets for sale, and unshackled production, we get riches, and we rank with the first in the world in that pursuit, because we work free from the restraint of monopoly or any old-fashioned crotchet of law to bind us down. This freedom enables us to carry on the sale of our manufactures to a boundless extent throughout the world. But the position of the British agriculturist is quite different. He stands simply and patiently bearing the shackles of monopoly, particularly that of the brewer and the Inland Revenue restraint in not giving him a free and proper trade to manufacture for exportation or home use a superior *malt wine*.

It is not generally known that a portion of proof French brandy is generally added to foreign wine previous to exportation to the extent of about 25 per cent. to that sent to hot climates and about 10 per cent. to that sent to England, in order to prevent its becoming acid by the action of the voyage, and if deemed necessary a few gallons more of French brandy may be added to it when in a bonded stores free from duty.

But the British wine maker is charged 16s. per gallon the duty on French brandy and 8s. per gallon on British proof spirit, if added to the wine, thus rendering it impossible to fortify the wine with spirit at the full duty, and then compete successfully with the foreign wine manufacturer, either for home use or for exportation. If the Government would allow 10 per cent. of proof French brandy, or 10 per cent. of British spirits, to be added to the British wine, the former at 6s. per gallon and the latter at 4s. per gallon duty, and 10 or 15 per cent. of foreign wine at half-duty to produce a smatch of fruit flavour (and on exportation of the said wine, the whole of the spirit and foreign wine duty not to be charged), then a successful competition and a very extended trade would, I feel confident, result in the manufacture of British wine, the quality of which we can show by practice is more wholesome to the British constitution than the foreign wine, whether consumed at home or abroad. This is accounted for by the much superior fermentation; and consequently a much cleaner wine or beverage can be produced from malt extract at a proper season of the year, in this country, than can possibly be produced from the grape in hot wine-growing countries at a higher atmospheric temperature.

To show the difficulties that the sale of agricultural products in beer and British spirits (each wholesome malt extracts) has to contend with, I would instance the conduct of the magistrates at the Brewster sessions. In the year 1851 there were twenty-five applications at Blackburn for new licences, out of which only four were granted, and three of those were shown to the public brewers without any tangible reason being given why the remaining twenty-one were refused. Again, the Kent magistrates, recently at Greenwich (29th September, 1859), sat eight hours hearing solicitors pro and con, and then came to the determination to grant only one, and refused the remaining fifty applicants for new victuallers' licences. These two instances, without mentioning many more of a similar nature throughout the United Kingdom, cast a direct insult upon the liberal and right feelings of a most important and respectable section of the public, whose pecuniary interests would evidently be much improved by an immediate removal of that contracting and obnoxious control. I think the only legitimate interference in the trade by the magistrates is that of punishing such delinquents who suffer excessive drunkenness and disorder to be practised on their premises by suspending their licences. But let a licence for those important articles of home produce be given to respectable parties when asked for, or at farthest within the period of two months. I think it would be much more sensible and justifiable if the magistrates were to be empowered to control the sale of deadly poisons, the notoriously adulterated food, and actively patronize the temperance movement, in lieu of the things that are perfectly wholesome and beneficial to health, when used in moderation. If the manufacturers of this populous district were to be impeded in extending their business by any old law that ran counter to the spirit of any improvement of the day, they would soon try to remove the obstruction by the aid of an intelligent Member of Parliament to vigorously grasp hold of any modern improvement, and drive forward on the best principle. I sincerely trust the British agriculturist will, without delay, have the good sense to follow their example; for I think he deserves quite as much respect from Government as the unshackled manufacturer, or the foreign merchant, who is allowed free trade in corn with our home markets. I see no articles of beverage exported into hot climates, that stand sound for ultimate use, but wine properly brandied, porter well charcoaled in the high drying of the malt, and Burton ale, whose water contains 43 grains per imperial gallon of the sulphate of lime, which is more by at least 30 grains per imperial gallon than the average class of water in England (this powerful sulphate of lime, no doubt, arrests the acid fermentation of the ale), with a prodigious quantity of hop bitter added to each of the last. From these facts I should infer that none of the above-mentioned articles are so wholesome as good malt wine prepared in the form I have suggested, or, when used, diluted with pure water to please the palate.

In the year 1854 the liberal and business-like Government of the Earl of Aberdeen suggested to Parliament the form of a bill to change the present system of granting victuallers' licences, and to throw the trade more open, which, if adopted, would certainly have been the means of extending the consumption of barley. The Palmerston Government, who succeeded it for the space of about four years, passed away without noticing the said bill, which now remains shelved in its dusty mantle, still under the control of the Palmerston Government, by whom, I fear, it will remain unnoticed, unless vigilantly roused out from its slumber, and at once made into a substantial fabric by the influence of the party so much interested in its adoption.

It naturally follows that an illiberal Government will feel very reluctant and shy in meddling with the present licensing system, for the fear of provoking that influential body of parliamentary electors who now hold licences. On such ground, the radical cure for such corruption would be the disfranchisement of both the licensed victuallers and retail beersellers, by which means the present system would be easily changed and the number of licences increased, adding several hundred thousand pounds to the public revenue, from a source of luxury ready and willing to yield to it when judiciously handled.

PROBABLE COST OF SUPERIOR BRITISH MALT WINE.

21 bushels of malt, at 7s. 6d. per bushel, to produce 108 gallons	£7 18 0
10 gallons proof malt spirit (without duty), at 4s...	2 0 0
Ditto, half usual duty, at 4s.	2 0 0
	£11 18 0

Or 2s. per gallon.

Ten gallons of foreign wine, if added extra, would cost about 1s. 2d. per gallon on the total. Yours, &c., R. J.,

Blackburn, Oct. 10th. A Practical Brewer, &c.

THE ANGORA GOAT—ITS BREED AND VALUE.

Fashion has its influence even on commercial operations, and many a revolution in trade transactions has been effected by some change of taste. A run upon any peculiar fabric necessarily creates an increased demand for the raw material. At one time alpaca is the rage, at another mohair; but both these substances maintain their favour with the public. The raw material for each of these has hitherto been obtained exclusively from one district. With the increasing demand, however, and higher price obtained for them, there is no reason why the production should not be more widely diffused. There are other climates suited to the animals than those where they have hitherto been chiefly reared, and we are glad to see increased attention being given to their extension. The opinions entertained as to the breed of the Angora goat degenerating if taken out of the peculiar locality where it has hitherto thrived, has been proved to be erroneous. Of course there are certain conditions of climate and food essential to their perfect health and to the superior quality of their fleeces.

Apart from its value in an agricultural point of view, the Angora goat is a remarkably handsome and interesting animal. Its curls of pure glossy white, together with the fine symmetry and gallant bearing of the animal, mark its high caste. Tournefort in his Levant Voyage, A.D. 1700-1-2, vol. ii, observes :—"They rear the most beautiful goats in the world in the country of Angora. They dazzle by their whiteness, and their hair, which is as fine as silk, curling naturally in tresses, eight or nine inches long, is the material of many beautiful stuffs, especially CAMLET; yet but little of this fleece is allowed to be exported, unless spun, because by it the people of the country gain their living. It would appear that Strabo speaks of these beautiful goats. 'In the neighbourhood of the river Halys,' says he, 'they cultivate sheep whose wool is very thick and very soft; and, moreover, they have there goats which are not found elsewhere.' Be that as it may, these beautiful goats are not to be seen at present more than four or five days' journey from Angora and Beibasar." Capt. Arthur Conolly, too, thus speaks of the animal: — "The long-famed silvery-white-hair goat of Angora, is peculiar to the province of Angora, and certain adjoining districts. It is *invariably white*, and its coat is of one sort, viz., a silky hair which hangs in long curly locks. The country within which it is found was thus described to us: Take Angora as a centre, then the Halys, Changere, and thirty miles beyond; Beybozar to the same distance beyond, to near Nalahan, Seyree Hissar, Yoorrook, Tosiah, Castambool, Geredeh, and Cherkish, from the whole of which tract the common bristly goat is excluded. Kinnier did not see a long-haired goat east of the Halys; we marked the disappearance of this animal on the westward, a little before Nalahan. Our Angora informants agreed that the boundary is decided on all sides, and remarked that, if taken out of their natural districts, these goats deteriorate, in point of coat especially, till scarcely recognizable; adding, that it is difficult even to keep them alive elsewhere. The fleece of the white Angora is called *Tiftek*, after the goats have completed their first year: they are clipped annually in April or May, and yield progressively, until they attain full growth, from 150 dirhems to 1½ oke of Tiftek (or from 1 lb. to 4 lbs.—one oke or 400 dirhems being equal to about 2¾ lbs. English.)" This subject, it may be remembered, was brought under discussion a few years ago by the exertions of H.R.H. Prince Albert, and much valuable information elicited. But it ought not to be allowed to die out, for it has since increased in interest and importance by the enlarged demand.

The Angora has been introduced successfully into the Cape colony. The sheep runs of that colony have been deemed very suitable for this goat. A member of the firm of Messrs. W. R. Thompson and Co., of Cape Town, went recently to Beyrout, where, at some sacrifice of time, trouble, and money, he procured a small lot of these. Another firm, Messrs. Mosenthal, introduced a lot, and crossed them with the native goat of South Africa. Samples of the produce of this cross are well spoken of, but we think it will be found desirable to keep up the purity of the breed. The Angora, by neglect of blood, degenerates, and the hair becomes mixed with kemp, which refuses the dye, and is injurious to the manufacture of the finer fabrics. The chief local objection urged against the Angora is the size, which is inferior to the African goat. It is stated, however, that the pasturage of the eastern province of the Cape has a sensible effect in increasing the size of those bred from the imported stock. The Angora is stated to be hardier than the colonial goat, being able to sustain exposure to cold and rain much better than the common one. This might be inferred from its thick fleece or hairy covering. The wool of the first cross fetches, in the colony, 1s. to 1s. 6d. a pound, and the skin of a half-bred Angora realizes more than a pound sterling in the Cape Town market.

The following shows the importation of Turkey goats' hair or wool into the United Kingdom, from 1843 to 1858 inclusive:

1843 ..	575,513 lbs.	1851 ..	193,046 lbs.
1844 ..	1,290,771 ,,	1852 ..	222,239 ,,
1845 ..	1,241,613 ,,	1853 ..	2,916,509 ,,
1846 ..	1,287,320 ,,	1854 ..	1,189,147 ,,
1847 ..	1,300,400 ,,	1855 ..	2,928,411 ,,
1848 ..	88,853 ,,	1856 ..	2,912,838 ,,
1849 ..	253,037 ,,	1857 ..	3,255,010 ,,
1850 ..	267,650 ,,	1858 ..	3,312,012 ,,

In the past ten years the price of this hair or wool has gradually increased with the extended consumption. In 1849 it advanced to 1s. 8d. per lb.; in 1850 and 1851 it reached 2s.; in 1852 and 1853, 2s. 4d.; in 1855 and 1856 it was again lower, at 2s. to 2s. 2d.; in 1857 and 1858 it was rather firmer, at 2s. 2d. to 2s. 4d.; while in the present year it advanced to 2s. 10d. to 3s. 2d.

Looking at the increased demand for this long, fine silky hair, there is no doubt that the propagation of the Angora goat should be promoted as much as possible; for we have many colonies well suited to its pasturage. It has been successfully introduced into South Australia; and parts of New Zealand, New South Wales and Tasmania would be well fitted for this animal. It has been carried into several parts of the United States. When we remember what has been done with the fine Merino breed in Australia, similar success and profit might result from greater attention to the Angora and Cashmere or Thibet goats and the Alpaca.

Messrs. Hughes and Ronald, wool-brokers, of Liverpool, in a recent report, thus speak of Angora goats' hair:—"The importation of Mohair is of comparatively recent date; and it is scarcely a quarter of a century since it was first introduced into this country. It was for some time chiefly used for the list-ends of woollen cloths, and commanded little attention; but for some years past it had been greatly gaining in favour for the fancy trade, and has now become an article of considerable importance, our annual import being upwards of three million pounds' weight. It is particularly adapted for damasks, velvet for coach-linings and curtains, and ladies' dresses mixed with cotton and silk, and produces a most agreeable texture. A large quantity of the yarn spun in this country is exported to France and also to Germany, where it is chiefly manufactured into velvet. The fashion has this year run thus much upon Mohair fabrics for ladies' dresses, that the wool has reached the unheard-of price of 3s. 2d. per lb., and everything on the spot and for arrival has been bought up for home consumption." And, Mr. P. L. Simmonds, in his descriptive "Catalogue of the Animal Products in the South Kensington Museum," thus alludes to it, and to the kindred tribes of goats yielding other valuable commercial products:—"Mohair is perfectly free from 'underdown;' unlike the Thibet or Cashmere fleece, which has a downy covering on the pelt, with long coarse hair, or kemps at the top, the separation of which is both tedious and expensive. In sorting Mohair, about one-sixth part is taken out, which is too short in the staple, and not applicable for combing purposes; and in the process of combing about one-fifth part is made into 'noils:' these, together, are bought by woollen manufacturers, for making into cloth of different kinds, and other materials. The common domestic goat of Thibet *(Capra changra)* is distinguished by the uniform abundance of its long flowing straight hair, which descends below the knees and hocks, and covers the whole animal pretty uniformly. This and the Kirghis breed are closely allied to the celebrated shawl goat; and their exquisite sub-fleece, or abundant outer coat, might be turned to good account—if not immediately, yet after crossing the breed with some nearer appropriate stock, such as the Angora or Whidah. The natives of Thibet manufacture ropes, caps, and coarse over-alls out of the long hairs, and a fine woollen cloth out of the sub-fleece, mixed occasionally with the wool of the Silingia sheep. The Cashmere, or shawl goat, also highly prized for its fleece, is descended from the goat of Thibet, which pastures on the Himalayas. When picked, the wool is soft, rich, and lustrous; indeed, superior to any lambs' wool that possibly can be produced, and afterwards divisible into two or three qualities. The kemp is a coarse and harsh straight hair, and when the animal has not been shorn for some time, the spiral points out-top the rest of the fleece. Goats producing the shawl wool are common in the countries west of the Caspian."

RHUBARB WINE.—We find in the *New York Tribune* a receipt for making "pie plant wine," as furnished by Mr. B. P. Cahoon, of Kenosha, Wis., the originator of the system; "The juice of the rhubarb is extracted by the same process as that of currant, elderberry, or any other juice; and mixing with the juice an equal quantity of water, to each gallon add three and a-half pounds of fair quality of New Orleans sugar. Put into barrels or casks, filled full, and fined with isinglass; being allowed to remain in the casks until Spring, and then bottled. By adding or diminishing the quantity of sugar, it will vary the strength of the wine in the same proportion. Rhubarb is said to afford a greater quantity of juice than any other plant, and it is also considered a better quality than any but grape juice to make domestic wine. The process is simple and has this to recommend it, moreover, it is said by those who have tested the merits of rhubarb wine, that it is equal to American sherry.

LECTURES ON PLANTS

Applied to Useful Purposes throughout the World, or otherwise fulfilling obvious offices in the Economy of Nature, commencing with those which are the Principal Objects of Cultivation, as furnishing Food, Fibre for Manufacture, Medicine, Colouring, Astringent and other Properties applicable to the Arts.

BY CHARLES JOHNSON, PROFESSOR OF BOTANY AT GUY'S HOSPITAL.

LECTURE II.

Grasses, distinguished from all other plants by a structure so peculiar, occupy the land to an extent of so much importance in the aggregate, that they may be regarded as constituting one of the most remarkable features of the earth's surface. In species alone they comprise more than one-twentieth part of the whole vegetable kingdom; and, like the human race, with the history of which in every age and country they are associated, this form of organic being seems capable of maintaining existence under almost every extreme of climate and physical circumstance. The ocean alone affords no range for grass development, though even this vast medium yields so far its exception, that certain species will only flourish upon its shores, a situation in which they fulfil important offices ministering to the general government of the world. Under the most scorching beams of the tropical sun, and growing from the crevices of rocks beyond the limits of perpetual snow, grasses are found; obeying, in each and in every intermediate habitat, the Divine command, "Increase and multiply and replenish." Wherever the footstep of man can tread, wherever even the glance of his eye can penetrate on land beneath the light of Heaven, he is reminded of the presence of this vast group of vegetation—a group upon which terrestrial animal life is chiefly dependent. Flesh is grass. Grasses are everywhere, where root can penetrate, or leaf find nourishment. The inhospitable shores of Spitsbergen and New South Shetland share their distribution with both the temperate and torrid zones.

As covering surface, the predominance of the grasses is too vast to admit of comparison with that of any other great natural family, whose increase they limit when the individuals are diminutive and weak, while they emulate and contest against the encroachments of the larger and more powerful.

The fanciful but far-seeing and inquiring Swedish philosopher, Linnæus, styled our grasses the "plebeians of the vegetable kingdom." Such they truly are, and, plebean-like, seek to occupy every vacancy, even treading upon the heels of its patricians. They are lower in complexity of structure than their prouder brethren, but there are many lower than themselves—groups of flowerless plants, which when the same imaginative genius, marking his close observance of organic nature, styled in their respective grades *bond-slaves* and *servants*, he assigned to their proper rank below our plebeians. These, in all soils and situations, prepare the way for the grasses, and having done so yield before them. Possession once obtained, the latter take up the unfinished task from their labourers, making the earth green and beautiful, and continuing their course until it teems with food for all its living creatures, and their human lords among the rest.

It is no whim of the enthusiast that inspires this exordium; matter of fact, the sternest monitor of civilized man, the most unceremoniously subversive of all his unsubstantial and merely speculative theories, and the youngest of his aims in science, regarding its application to the general concerns of life—*statistics*—support this all but apotheosis of grass. A glance at one series of its details, that concerning its supply of food, will be sufficient to illustrate a point that few perhaps take into consideration. The direct consumption of any medium of support may be appreciated, the indirect remain unnoticed. Founded on commercial records and returns, about the commencement of the present century, Mr. McCulloch, and other statistical writers and compilers, have given us some useful confirmatory statements that will aid us in forming some idea of the vast expenditure of grass and grass products in our island, in which, it ought to be remarked, less vegetable food is employed than among many of our continental neighbours. Thus, the average quantity of corn consumed by each individual in this country is computed to be eight bushels annually, while in France it amounts to ten. In either case, this estimate is loosely calculated from the native growth and importation in the respective countries of European grain; but rice, a similar production, of which about 400,000 cwt. are brought to us yearly; maize, millet, and others received in smaller proportion, and less generally used—all contribute to increase the average of direct human consumption of grass in no trifling degree, while an annual supply and home distribution of 450,000,000 lbs. of sugar add to it still more enormously. Our indirect employment of this group of vegetation as a life-supporting medium is no less enormous, though it may be difficult, nay perhaps impossible, fairly to estimate its extent: it is in its form of pasturage for the maintenance of sheep and cattle, through which it becomes human food, as mutton, beef, veal, milk, butter, and cheese. The most moderate computation assigns to every individual, young and old, rich and poor, taken in the aggregate, an average yearly consumption of one hundred weight of butcher's meat, estimating the same from the number of cattle disposed of at markets throughout the kingdom for immediate slaughter; an average doubled by some statistical reporters, but here selected to avoid the exaggeration that might ensue where the means of calculation are at the best imperfect. The stock of animals constantly maintained for this supply in Great Britain alone may be stated in round numbers at five million head of cattle, and thirty million of sheep.

The artificial system of cattle farming as now practised may warrant some deduction from the general assertion that all this is grass meat; but grass and grass produce are still its leading composition, and consequently that of all the articles enumerated above—namely, meat, milk, cheese, and butter—in consuming which we are, as expressed by a late writer on the subject, really only eating "grass in disguise." Our pork, poultry, and game are more or less dependent upon the same source; and upwards of a million of horses, chiefly employed for the necessities of conveyance and traffic in this busy land, subsist almost entirely on the produce of the meadow and the corn field.

The proportion of the food-elaborating grasses, though considerable, is not surpassing, when the vast extent of the group is taken into the account. Like that of their human parallels, their allotment of business in the commonwealth of Nature is great, and much diversified; circumstances that induce me to divide and classify them according to their natural adaptations. A few preliminary remarks may, however, be necessary to place such arrangement in its proper light, and at the same time be serviceable in explaining the views I am desirous of inculcating on the study of nature on the broad scale.

It occurs among the grasses, as with the species of other great natural families, that while some are immediately subservient to the necessities of animal life, from the animalcule and insect upward to mankind, the office of others is simply that of preparing the conditions requisite for the existence of those which follow them. This is a natural law pervading the entire economy of the vegetable kingdom, and traceable to a certain extent in that of the animal; but the functions of many appear to be wholly dedicated to its fulfilment, and to cease when that is attained, so far at least as our very limited observation enables us to determine; while with the remainder a succession of offices is provided, through which alone they arrive at the termination of their existence. We may illustrate this fact by selecting a few out of many circumstances associated with the history of a single tree.

Let our tree stand in the middle of a forest. On its trunk grow lichens and mosses, plants which are not either of them capable of affording subsistence to insects, or to any of the higher or lower forms of animal life. These little plants, however, elaborate the elements of air and water, as well as of those materials that in the form of imperceptible dust, or even vapour, lodge upon the rough and slowly-disorganizing external bark to which they adhere, eventually to be cast upon the earth to undergo another phase of that perpetually-recurring change of matter so essentially connected with the birth and maintenance of organic being. But the tree itself has a more extended field of operation. Its leaves, necessary to its own life as are lungs or gills to the quadruped or the fish, act chemically upon the surrounding atmosphere, aiding more or less to the maintenance of its salubrity, while at the same time innumerable insect forms are supported by their juices and tender tissue; its fruits and seeds feed the birds and squirrels, independent of the destiny of the latter to the propagation of their kind; man lops its branches for lighting and recruiting his fires, and finally fells its stalwart trunk for the purposes of building and manufacture. If man came not to destroy, and nature be left to her own secret workings, the drama of tree endurance and usefulness is lengthened until it falls, hollowed by age, and borne down by tempest. Then the gigantic stem, bored through and through by previous depredators, and lying apparently a useless mass, is still in requisition under the grand ordinance which summoned it at first into existence, reared it to maturity, and compelled its overthrow—one kind of grub or beetle gnaws its loosening bark, another feeds on the yet hard wood, each to be succeeded by different species, through all the stages from incipient to final decay, until form is utterly annihilated, and its remnants mingled with the soil. The lichen and the moss had long before finished their career: theirs was a single office only, fulfilled and closed; the tree had a more extended, a more complicated purpose to effect. All the three were pioneers to those which might follow in their course, but their means and capabilities differed. There is a similar variation between those of different grasses, notwithstanding the close structural resemblance which they bear to each other: one lives and flourishes that another may live and flourish afterwards; but one, like the moss and the lichen, may terminate its existence, having lived to no other end; while another, fulfilling its correspondent mission from the first, may, like the tree, prolong or multiply its labours and their results until they become associated with the history of a world of life and reason.

Pursuing this idea, we may, I think, with advantage adopt the proposed classification. It has the merit of being philosophical, and at the same time familiar. The mere student of system and arranger of species might dispute its value even for the purpose before us, as being opposed to all rules technical, and ignoring the generic characters which he has been taught to consider founded on laws as unalterable as those of heraldic emblazonry, but which are really so arbitrary in this family of vegetation, as to render them next to useless for all practical purposes, and only tolerated in abstract science from our present incapability to substitute others more correct and decisive.

Our divisions are few, and characteristic solely of association with end, purpose, or application—

1. Colonizing grasses.
2. Land-forming grasses.
3. Pasture grasses.
4. Cereals.
5 Sugar-producing grasses.

To complete the history of the tribe, our plan must of necessity embrace various other topics; but as regards the simple classification of species, and the order in which they will come before us, this arrangement will be sufficient.

By colonizers must be understood those grasses that naturally vegetate on rocks, striking their roots into the fissures or crevices, or on sand and other media which contain little or no assimilative organic matter, and are hence unfitted for the growth of plants requiring much nutrition through the root, subsisting indeed almost exclusively upon air and water, aided perhaps by the slow decomposition of the mineral substances among which they grow. Such grasses are generally distinguished by the very rigid texture of their stems and foliage, and the slender, incurved, and pointed character of the latter, which is often almost hair or thread-like, especially in those belonging to very elevated and mountain regions. In such situations, too, a peculiar light-grey or whitish hue occasionally supplants, or rather conceals, the natural green colour of the leaves. This is due to the lodgment of secretory matter upon the surface, and being likewise observed upon the leaves and other parts of such plants as grow near the sea-shore, or within reach of the driving spray; the appearance is termed "glaucous," or sea-green. The object of this covering is apparently, in the one instance, protection from cold or damp; and in the other, from the spray, which by its saltness would be injurious to the vital tissue beneath. The glaucous hue is not always characteristic of the same species, as, though in certain cases retained, it is frequently absent in such plants when growing in lower or inland habitats.

The land-forming grasses are strictly speaking colonizers likewise, but the distinction between the two is necessary, on account of the difference of the offices they individually fulfil. The colonizers operate in the production of soil on land already serving as a solid basis for its reception. They are usually perennial, forming more or less dense wiry tufts; but many are only of annual duration, scattering their seeds abundantly to renew and maintain unceasingly the process of assimilation, that is to terminate in their eventual expulsion, so soon as others of more succulent and nutritive quality can find upon the site food for their support, that food having been accumulated there by the alternate growth and decay of their predecessors. But of those which we are to regard as land-formers, one series fixes on loose, drifting sand, extending through the same by long, undermining, horizontal stems, that branch and cross each other until they form a strong, coarse network below, that binds the mass together. Every joint sends out roots, by which the stem maintains position while it creeps onward indefinitely, sending up at intervals tufts of leaves and flowering stems, around which the wind accumulates the sand in hillocks. In a second series, the horizontal stems creep over the surface chiefly, which they cover with a dense matting, rooting with even greater firmness and solidifying the unstable mass with a rapidity and a certainty that bid defiance to any future disturbance. In both instances the tenure of such grasses is temporary. In fixing and forming firm ground, they render it a fitting habitation for the colonizers, that quickly arrive to aid them in their work, and carry forward another step the conversion of the desert into a pasture. A third series may be conveniently subjoined, consisting of certain grasses of aquatic habit, which, assisting in the gradual transformation of lakes and pools successively to bog, and heath, and meadow, may be considered as land-formers. Such species, however, are often fodder grasses of considerable nutritive importance, and hence bear no natural resemblance to those of the previous series, which are universally rejected by herbivorous animals.

Our third division, pasture or fodder grasses, consist of species exceedingly various in aspect, usefulness, and adaptation to all diversities of soil and situation, but they will only flourish where that soil exists; without the presence of the necessary organic elements accumulated by their predecessors, where their seeds alight they vegetate in miniature and die. The knowledge of their several grades of fitness for nutrition, and of adaptation to the land, is, or ought to be, one of the most important items of agricultural education; but it is a problem few have even sought to master. Nature sends them where they ought to grow, but man often endeavours to improve upon her plan, and fails. They constitute an extensive group, the species of which, individually accommodated by structure to abstract certain proximate principles from the soil in which they vegetate, are only found where those predominate; if such are wanting, or in smaller proportion than required, other grasses with different affinities and powers of assimilation overpower or exclude them. They are never found isolated, or occupying the land as solitary species, but always mingled in variable numbers with each other, five or six to twenty or thirty species composing the vegetation of the meadow or pasture; their combination being apparently equally necessary to the welfare of the animals feeding upon them, as change of food is to mankind, of whom it has been recorded that "they shall not live upon bread alone."

As pasture grasses feed the brute, the cereal or corn grasses are the support of the man. Their annual character, added to the necessities of the latter, renders their preservation dependent upon the cultivation, of which, in almost every instance, they have been the objects time out of mind—a circumstance that has apparently so changed their superficial and even their structural condition, that they are no longer capable of being recognised in the wild state.

The fifth group is altogether an artificial assemblage, of which only one species at present possess immediate claim to our notice as associated with European economy, though not individually, as we shall find, an exclusive elaborator of the saccharine principle among grasses.

A wide page opens beyond these in the study of the remainder.

ON AGRICULTURAL IMPROVEMENTS.

Mr. W. Chouler, at the Collingham Farmers' Club meeting, said it was his pleasing duty to congratulate them on the success of the Society generally. All entries, especially the ploughing, were on the increase, and he was more happy to name that, because this was essentially a farmer's club, never having been a society much fostered by aristocratic influence. It was a club of their own, established for the purpose of disseminating knowledge, rewarding merit amongst their labourers, and to create discussion on those topics which were so beneficial and serviceable to the agricultural interests. They seemed almost to have arrived at a time when there would be a contest between the ploughs as to which were the most beneficial, whether wood or iron ones. Mr. Hornsby, he said, had succeeded in bringing out a light plough, which had taken the head prize that day. Still he had some doubts whether the light wood plough could be generally used in this neighbourhood. He was not of opinion, however, that they would be thrown out of use altogether. They wanted to try the draught of them, whether in work or out of work, and the difference of draught between swing ploughs and two-wheel ploughs, particularly in dirty weather. Whether there was more for the horses to do with two wheels and a man less, or without the wheels, but with another man—this he was at a loss to know with any degree of certainty, as these matches did not afford a sufficient opportunity of testing. He then noticed the new traction engine, which he had lately seen at work at Grantham, but he was sorry to say that there was no probability of it shortly becoming generally used. It was a weighty implement, and with the action on the ground it had as much as it could do to draw a common dray. It did not go any length of distance without stopping. Therefore, as far as they saw, they were decidedly of opinion that in its present state it was altogether useless for general purposes. There was one thing, however, which they might be of service to the farmers generally. If a nice light iron cart body was made, then the traction engine might be of service. They might be made useful and durable at probably very little expense. They had many iron wheels, but iron carts were not much seen. He would now go on to notice what the chairman had said respecting the use of machinery for farming purposes becoming general. With regard to reaping machines, he said he had worked one to very considerable advantage. He was happy to say that he was not of opinion that it would be likely to displace the work of the English labourer: but it would have the tendency to render the occupiers of land in the masters more independent of Irish labourers. The reaping machine did the heaviest part of the work, and where crops were adapted it did it in such a way that no hand labour could do it so regularly nor lay it so level. Though he had a high opinion of the general utility of the reaping machine, he knew that it would not succeed in every instance. There were some crops which it might be adapted to cut, and providing it was properly worked in proper land there were few crops but what it would cut; but the chief success depended on the men who worked it, and the manner in which it was worked. By judicious management, and by taking the crops as they lay, as a scythe does, if it was not adapted to all, it was a beautiful implement to accelerate labour, saving the English labourers the heaviest part of their work, and rendering the farmer independent of the Irish. They were the most troublesome class of persons they had to deal with. The reaping machine would cut, on ordinary days, from 10 to 20 acres, and sometimes exceed that. Mr. Chouler then proceeded to give his opinion respecting the hiring of servants at the common statutes. About a year ago there was an attempt made at Lincoln to do away with the system altogether. Although the custom had a tendency to demoralize both the male and female of our servants, yet he had very great doubts whether they could adopt any other general principle where they could all join in doing away with what some call the nuisance of the market statutes or hirings. It had been tried in Worcestershire. He (Mr. Chouler) was not of opinion himself that it could be done without. There was also another description of labour to which he would allude. Machines had come out lately for the purpose of pulping roots for mixing with cut stuff. With respect to it he was unable to give a decided opinion in any way. Some said it was good, and others that labour beats it. Whether it was pulping machines, reaping machines, or steam ploughs, he had no hesitation in saying that nothing would decrease the amount of labour for the poor man. He had found out that whether it be an individual, or whether it be a parish, the greater the quantity of machinery there was employed, and the more there was done by it, the more labour there was employed, because the land was in a better state of cultivation, and there was more work to be done. It would have the tendency of enabling the farmers to produce more food. More wheat would be grown; and the more stock they could keep in the Winter, the more meat there would be for the people at large—the more manure they would make, and, as a natural consequence, they would be able to grow more corn and produce more bread. With regard to the harvest, he was sorry to say that those who had not thrashed would find out the yield soon enough; and those who had, had found it out already. Farmers had two things to contend against—neither of them very pleasant—an insufficient yield and low prices. The barley crop was worse than he had ever known it. What was to be done with inferior barley he knew not. If the malt law were to be relaxed they could malt their inferior stock. But in the present state of the national expenditure he was sorry to say that it did not appear likely that the malt duty would either be removed or properly relaxed. He would not let down the army or navy, but he would keep them up to what they were; but he would not throw millions away in trying useless experiments. He was sorry to say that he had seen in the *Times* a sneering article against these kinds of meetings, and against the reward they gave for long service. It seemed to him (Mr. Chouler) that if the writer of these articles had been present that day, and had seen the cheerful manner in which the labourers had received their prizes, he would form a very different opinion to what they had published. He would be happy to see some of them there. It would give him pleasure to show them how the men contest for these prizes, and with what thankfulness they had received them.

IMPROVE THE HOUSES OF YOUR LABOURERS, AND EDUCATE THEM TO KEEP PACE WITH THE IMPROVEMENT IN AGRICULTURE.

We cull the following remarks, on these important matters for the attentive consideration of all interested in the advancement of agriculture. At the Dunmow Labourers' Friend Society, CHARLES DU CANE, ESQ., M.P., said: The objects of this and similar associations are too well understood, and happily at the present time too highly appreciated, to render it necessary for me to dwell upon them, or doubt that this toast will meet at your hands with a cordial reception. The experience of both ancient and modern history has taught us that a sound and healthy state of agriculture, and the prosperity of all classes connected with the land, is a sure index of the well-doing of the whole nation; and that a country whose agriculture is depresssed, and whose native productive resources are not developed, has rarely been able to sustain its position in the onward march of progress and of civilization That I believe is a truth which is fully recognized in this country at the present period; and the result has been that during the past few years a complete revolution has been effected in the agriculture of England—we have availed ourselves to the utmost of scientific inventions, of the application of steam-power, and of chemical discoveries; but, like wise and judicious workmen, we resolve, while we rear in our English agriculture a structure at which the world may gaze in admiration, that the foundations of our building shall not be neglected. We know that in the great cause of agricultural improvement the discoveries of the engineer and the chemist would advance us but little, had we not labourers upon whose integrity and whose intelligence we could rely; men endowed with both brains to learn their work, and hands skilled to execute that which they have learnt by the use of their brains. We might cover the country with monster gatherings like those of the Royal Agricultural Society, or the Essex Agricultural Association; we might amuse the eye with the most ingenious inventions of the machinist, and we might startle the ear with the most elaborate and scientific lectures of the chemist or the geologist; but I think you will agree with me that our work would be but half done had we not humble Labourers' Friend Societies, by which to endeavour to solve the great problem of the amelioration in the social scale of the labourer's condition, by which we seek to increase his skill, and render him a fitting instrument to work out that path on which we are lit by the lamp of scientific discovery. This is, as I take it, the object we have set before us in the formation of these associations, and we may depend upon it that the seed we have thus sown is bringing its fruit in due season. It is impossible, I think, for any one to cast his eye over this county at the present moment, and not acknowledge that our labouring-classes have improved of late years in tone and condition. We may view that improvement generally in the cheerful look and manner of the man himself, in the increased anxiety to avail himself of all opportunities of mental and practical improvement; and I do think we may see it, especially at the present moment, not merely in the entire absence of that awful amount of crime of the worst order which but a few years since made the name of Essex a byword and a reproach among the counties of England, but, as compared with the former years, I had almost said, the non-existence of crime at all. I do not know how you may be in this respect in Dunmow and the vicinity, but in the district of Witham the Bench of magistrates, one of whom I have the honour to be, hold offices which may almost be said to be entire sinecures. We meet only for a few minutes, chat about the weather, or read the newspapers: in fact, we have nothing to do. Besides, the gaol at Chelmsford was found by the magistrates, at their recent visit, never to have contained at any former period so small a number of prisoners. These are signs of the times that we must all look upon with feelings of satisfaction. I do not say that this change has been entirely effected by the establishment of Labourers' Friend Societies, but I say that they have borne no inglorious part in the good work: still less do I say that there is not much remaining for us yet to do. We have it in our power as employers to devote ourselves still more energetically to this work. *We have it in our power as landlords to lay the corner stone of the fabric, by doing all that our means will enable us to effect towards the improvement of the dwelling-places of the poor, and the providing them with sound and religious instruction.* But I think we may gather encouragement from the past and the present, as we look towards the future, and we may be sure that the more we thus join all classes together in a common bond of union and of interest, the more we can show to the labourer that we recognise the just and proper duties our position entails upon us, the better we are lending our assistance towards the increase of our country's happiness and the spread of our national civilization.

Mr. WADE considered that great benefit was conferred on the neighbourhood by the system of garden allotments, which enabled the admirers of the young and old systems of cultivation to compete in a friendly spirit with respect to the produce. The prizes to lads for excellence in ploughing were most justly entitled to praise; for they had seen that day a lad who could scarcely reach the handles of the plough gaining a prize, and doubtless the other lads tried their best to gain the laurels which this lad had won. A generous healthy spirit of rivalry in skill was a good thing to promote amongst the rising generation. The landlords in the neighbourhood deserved great thanks, for there was scarcely a deserving labourer in Dunmow who had not an allotment of land. And the labourer almost looked upon these allotments in the nature of an inheritance; for as long as he performed his compact with his landlord, he never stood a chance of being turned out of his holding, and if he died his son succeeded to it, so that his labour and his means might be safely expended upon his allotment. The specimens exhibited that day were very good, especially the potatoes, and quite equalled the produce of land under higher and more expensive cultivation. The encouragement which this and kindred societies afforded to the young was best exemplified by the fact that a mere child had to be lifted up that day to receive one of the prizes. Doubtless her fellow-scholars, hearing of her success, would try and emulate her, and each other, another year. *It was perfectly true that the estate of the Lord-Lieutenant was spangled with labourers' cottages, not built simply to let or to sell, but substantial brick buildings, with slated roofs, and a good yard with a pump, and were let to the labourers at the small rent of 1s. per week—a sum quite within their means.* He should be glad to see his lordship's example followed in other counties.

At the Worcester Society's Show Mr. E. Holland said: Farmers must now depend upon the moral character as well as the strength of their labourers. A man could not be made moral in a day: it must be by habits and by practice of those habits that he became at last a good member of society. Hitherto, in the previous generation, as well even as at the present time in some parts of the country, the labourers were not treated as men worthy of trust; and therefore, partly from that cause, and partly from their own ignorance, they did not become worthy of trust. It was, however, in the present day necessary for the capital expended upon the land, much of which was at his mercy, that the labourer should be a trustworthy person; and how was that object to be achieved? Partly by a good example being set him by his employer, which he might copy, and it was essential that the individual who was to lead a moral life should lead a happy life. *For that purpose the dwellings of the labourer must be improved, that he might have an opportunity of exercising those habits of decency and comfort which his employers practised in their own homes.* Without any great exertion on the part of the farmers, a better system of hiring was now being adopted, which would benefit both themselves and the labourers. It so happened that the farmers of that part of the county, and in a neighbouring county, were paying more particular attention to the question of hiring; and those who had taken an active part in the matter found to their satisfaction that, although mops still existed, the system had very much altered from what it used to be at those places. The older servants were now men of a higher character than formerly: they were hired previous to the mops taking place, and only attended those places as a holiday. Those who really were hired there were labourers of a lower grade, and the young of both sexes, with respect to whom arose the principal evil of mops. Many and many a young lad was there taught his first lesson of iniquity; and many and many a girl might trace the commencement of her ruin to those meetings. Therefore it was that he considered a change in the system so desirable—a change which, without much exertion on their parts, or which would at all interfere in the positions of masters and man, might tend to their mutual welfare and best interests. If farmers generally throughout the country would adopt the system of hiring their older servants on other occasions than mops, and afford to their younger servants a better system of amusement, he was quite sure much good would result. He had alluded to the subject thus fully because, as he had said before, the amount of capital which farmers had now exposed to the mercy of their labourers was so large and so increasing, that it was to their own interests and most essential that some change should be made.

Mr. Royds said that he scarce knew which to thank the company for most—for the kind manner in which they had drunk his health, or for having attended to witness his steam-cultivator. Twelve months ago that machine was barely thought of; but at the last anniversary meeting of the society some observations were made which caused him to determine on having a steam-plough. Next morning he and his engineer planned the apparatus which they had seen at work, and which, with several alterations that had been made in it, cost £500. He hoped the time would come when, either by shares or by the assistance of large landowners, the use of such machines might become general amongst those small farmers who could not afford the expense of purchasing one, and that agricultural improvement would continue to progress. He must say he had found the labourers of this neighbourhood anything but as sharp as he could wish them; but he knew they were warm-hearted. In his opinion the greatest curse of the Worcestershire agricultural labourer was having his wages paid part in money and part in cider; and so convinced was he upon the matter, that he had determined even in the most fruitful cider season not to pay one sixpence of wages therein. The labourers ought to be paid all in money, that they might spend their wages with their families. If that system was adopted, and the evil he had spoken of removed, they would strike deep at the roots of the curse of this neighbourhood.

LANDLORD AND TENANT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—I feel greatly obliged by your publishing in your *Express* of the 3rd instant the remarks which I made from that excellent speech by John Tollemache, Esq., M.P. for the County of Cheshire, at the Chester Agricultural Meeting. I was desirous to give publicity to the liberal system established by the Hon. Member, and to caution the tenant farmers not to invest their capital in the land unless they were guaranteed ample security for all unexhausted improvements in such land on giving up the possession.

I consider that publicity should be given to the acts of such liberal landlords, in order that others may follow such praiseworthy and judicious examples, rendering unto the tenant farmers a fair value for all their property which they may have invested in the land for the benefit of their landlords on quitting such land.

With such provisions there cannot be any plea for bad farming. But in the present day the tenant farmers, speaking generally, are prevented through fear from investing their capital, knowing that by a six months' notice they may be deprived of their property.

I have known in my experience many cases of great injustice, indeed I may say great cruelty, in which tenants had invested nearly the whole of their property in improving their holdings, sad to relate, compelled by a six months' notice to give up the whole to a mercenary landlord.

It must be evident that so long as such a system is practised the land cannot be properly cultivated. It is truly gratifying to me, as an old retired farmer, to find that there are many excellent landlords, who feel an interest in the welfare of their tenants, who act up to that principle of "Live and let live." But I have never heard of a landlord coming forward at an agricultural meeting to express such liberal views as the worthy member for Cheshire. His advice is praiseworthy in every sense of the word, and his conduct to his tenantry is in accordance, which his agreement with them will testify, which has been sent me by some unknown hand. I will, therefore, Sir, forward the same to you if you can find space to publish it, or even a part. It will convey at once the system carried out by this liberal landlord, to repeat again his own observations, in which he stated that "to carry on long and extensive improvements, it was necessary for the landlords and tenants to work together, as they were the important parts of a whole that was for the benefit of the public." No doubt this patriotic landlord has long entertained such views, that the landlords and tenants must work together—the one finding the land, and the other the skill and capital for the cultivation. And with a desire that they should use their best energies and invest their capital freely, a proper and safe agreement should be given the tenants for security.

With such an example before us, I would say to landed proprietors, who are desirous to see their estates improved and the public benefited thereby, go and do likewise.

I have never seen an agreement or lease of land quite perfection. Covenants are often inserted by the profession, who are inexperienced in agriculture. There are three or four provisos, but only two I consider rather objectionable in the agreement of the Cheshire estate, which I will take the liberty of naming.

The tenant farmer's position is very different to persons renting a house, who can remove their goods without any great difficulty. But it is not so with the agricultural tenants, who, by a six months' notice, may be compelled to sell their stock and crops by a forced sale, consequently often at a great sacrifice. I have long entertained the opinion that in justice to those who cultivate the land, they should receive at least a twelve months' notice previous to giving up possession; and I cannot but conclude, from the liberal terms held out by Mr. Tollemache to encourage his tenants to improve their holdings, that if advised by his agent he would readily extend the six months' notice to twelve.

In the 6th clause on tillages, I find the tenants are not allowed to grow more than one white straw crop in succession. Such a restriction I cannot understand; indeed, I am at a loss to conjecture the injury the land would sustain by a crop of barley or oats after wheat, which is the usual practice in most counties after part of the wheat crop. There are two or three minor items rather unusual in the agreement; but when compared with the security held out to the tenants on the Cheshire estate, they are comparatively of little consequence. I should conclude that the tenantry on this estate farm first-rate—desirous to outvie each other, giving a convincing proof to their liberal landlord that, although he may have to remunerate them for their outlay, his estate will be improved in proportion.

CHAS. NEWMAN.

Woodland-place, Ealing, Oct. 18, 1859.

CHESHIRE ESTATE.

MEMORANDUM of an Agreement made this day of One Thousand Eight Hundred and , between JOHN TOLLEMACHE, of Pecforton Castle, in the County of Chester, Esquire (Landlord), his Heirs and Assigns on the one part; and in the township of , in the County of Chester (Tenant), on the other part.

First—The said John Tollemache doth hereby agree to let, and the said to hire, all that messuage or tenement, and farm, with houses, out-houses, buildings, gardens, lands, hereditaments and appurtenances thereto belonging, situate in the township of as hereinafter mentioned, and described, in the schedules hereto annexed; all of which lands contain, by admeasurement, statute acres, or thereabouts, be the same more or less, for the term of one year, commencing the ; and so on from year to year, until the same shall be determined by six months' notice, prior to the 2nd February, given, in any year, by either party; yielding, and paying yearly unto the said John Tollemache, his heirs, or assigns, the rent, or sum of of lawful money as used in Great Britain, by four equal quarterly payments in the year, namely on the 25th of March, the 24th of June, the 29th of September, and the 21st of December, which quarterly payments shall be considered as due and payable in advance, and if not then, and so paid, shall and may be recoverable, as well by distress in the usual manner, as by action at law.

And it is further agreed that the said shall give up possession to the said John Tollemache, his heirs or assigns, or his or their incoming tenant, of the arable land, on the 21st of November: the meadow and mowing lands, on the 21st December: the garden and all other lands (except a boozy pasture numbered on schedule) on the 2nd of February: and the messuage or dwelling house, and out-buildings, &c., and the said boozy pasture, on the 1st of May, after due notice to quit be given, by either party.

And it is hereby agreed that the said John Tollemache, his heirs or assigns, shall have power at all times, by himself and all persons authorised by him, or his agent, to enter upon the said lands and premises for the purpose of getting, working, or removing any mineral, stone, sand, marl, clay, or gravel, and for carrying away the same, the said being paid reasonable compensation for surface damage, by the getting, working, or removing such mineral, stone, sand, marl, clay, or gravel, which are reserved for landlord's use.

And it is further agreed that the said John Tollemache, his heirs or assigns, shall have power at all times, by himself, his servants, or friends, to enter upon the said lands, or premises, for all purposes of sporting or fishing, and the said shall, and will preserve all fish, and game (with the exception of rabbits and hares, as hereinafter mentioned upon the said lands, and premises, for the sole use and pleasure of the said John Tollemache and his heirs, and will forbid, and warn off, all persons from fishing, or sporting, or otherwise trespassing on the said lands, or premises. The said shall, and will, at his own expense, keep a dog for the use of the said John Tollemache, his heirs or assigns.

And it is further agreed that the said shall be allowed to ferret, and destroy all rabbits, on the said lands, and to shoot hares, from the 1st of February, to the 1st of May, in every year.

And the said John Tollemache, his heirs or assigns, shall have power at all times, by himself. or his agent, to authorize any person, or persons, to enter upon the said premises, to fell and carry away timber, wood, and trees, and for planting trees in the hedge-rows, and for all other reasonable purposes, doing as little damage as may be.

Provided always, that if the said , his executors, or administrators, shall not duly pay the said rents, or shall assign over, or part with the possession of the said premises, or any part thereof, or shall not constantly reside in the said dwelling house, or shall become bankrupt, or insolvent, or shall assign over his effects for the benefit of, or compound with, his creditors, or if his goods shall be seized by virtue of any private security, or be imprisoned by any civil or criminal process for the space of fifteen days, or if he shall make default in performance of any of the agreements herein mentioned, it shall be lawful for the said John Tollemache, his heirs, or assigns, to re-enter, to possess, and enjoy, as of his former estate, the said and all occupiers of the same premises, from thence utterly to expel, put out, or remove; the said or his administrators, being paid a fair valuation for all crops, tenant right, and proper acts of husbandry performed, over and above the sum due for rent, or arrears of rent, or penalties.

And it is further agreed, that any receipt for rent shall be no discharge for any sum, or sums of money, which shall become due and payable for any breach, or non-performance of any covenant, or agreement as hereafter mentioned, unless in such receipt it shall be so expressed.

And furthermore, the said hereby undertakes and agrees, as follows, (that is to say,)

1st—To pay the rent of according to the accompanying reservations, and to pay all tithe rent charges, land tax, county rates, poor rates, highway rates, church, and all other parish rates.

2nd—To pay an additional rent of £10 per annum for every acre, and so in proportion for any less quantity than an acre of the said premises, that may be assigned or underlet. To pay £20 for every acre of permanent pasture, and mowing land, described in schedule Nos. 1 and 2, and so in proportion for any less quantity than an acre, that be broken up, or converted into tillage land. Not to mow any of the pasture or meadow land, except that mentioned in schedule 2, under a penalty of £10 per acre. And not to mow any field, described in schedule 2, more than twice in succession without manuring the same, under the penalty of £3 per acre, unless it shall be irrigated, or manured with bone dust, at the rate, at least, of 12 cwt. per acre.

3rd—To pay an additional rent of £5, for every day he shall over-hold the premises, or any part thereof, after the legal time for quitting, or giving up the same, as herein before mentioned.

4th—Not to carry off the premises any straw (except what may be required for the landlord's use), hay, clover, seeds, grass, dung, or turnips, produced from the said farm, or premises, but to consume with stock all such produce, and spread upon the said lands all such dung as shall arise therefrom, under a penalty of £5 per ton, except in the last year, as hereinafter mentioned, unless with the written consent of the landlord.

5th—Not to make cheese on the Lord's day during the continuance of this agreement.

6th—To manage the arable land in a good course of husbandry, and never on any account to take two white straw crops in immediate succession, and not to have in tillage in any one year, more than A. R. P., statute measure, of the land allowed for tillage, exclusive of clover leys of first year's lying.

7th—Not to put any cattle or live stock on the clover roots, after the 10th of October next following the giving of notice to quit, the said receiving the cost price of the clover and other seeds, and three shillings per acre for sowing and harrowing the same, provided the work be done thoroughly well, according to the best rules of husbandry.

8th—To do, if called upon, days' team work every year for the landlord.

9th—To keep, and leave in good repair, at his own cost, the said messuage, house, outbuildings, gates, stiles, pumps, and bridges, and keep all drains and water courses in a clear and proper manner, being allowed materials in the rough for such repairs.

10th—To lay down on an average bell-mouthed pipe tiles annually, at least three feet deep; to drain such lands that most require it, the landlord finding tiles; the tenant paying 3½ per cent. per annum on the cost price.

11th—To spread not less than cwts. of good bone manure on the permanent pasture every year, during the continuance of this agreement.

And lastly—The said doth agree to pay any additional rents or penalties, if claimed within two years, such underletting, breaking or ploughing up pasture, or mowing as aforesaid; and if not forthwith paid, shall be recoverable as rent in arrear, as well by distress as by action at law.

It is hereby further agreed, by the said landlord, John Tollemache, his heirs, or assigns, to allow and pay the said tenant at the end of this tenancy, for certain improvements, after the following manner, (that is to say),

1st—For having improved the said lands or any part thereof, by tile draining, and the same shall have been approved before commenced, and whilst in progress, by the said landlord, and such approval, together with a certificate, signed by the said landlord, then, and in such case, but not otherwise, the said tenant, on quitting the said farm, or his representatives in case of his death, shall be allowed the amount stated in such certificate, after deducting therefrom a tenth part thereof, in respect of each entire period of twelve months that shall have expired since the date of such certificate.

2nd—For having improved the said lands, or any part thereof, by mole-plough draining, and the same shall have been approved of by the said landlord, and such approval, together with a certificate signed by the said landlord, then, and in such case, but not otherwise, the said tenant, on quitting the said farm, or his representatives in case of his death, shall be allowed the amount stated in such certificate, after deducting therefrom a fifth part thereof, for each entire period of twelve months that shall have expired since the date of such certificate.

3rd—For having reared new quick-set fences, the same having been previously approved of, and the said fences planted with a sufficient quantity of quick-sets, and kept clear of weeds, to the satisfaction of the said landlord; then, and in such case, but not otherwise, the said tenant, on quitting the said farm, or his representatives, in case of his death, shall be allowed the cost, after deducting therefrom one-eighth part thereof in respect of each entire period of twelve months that shall have expired since the date of the certificate, which will be given when the work is completed.

4th—For having improved, at his own cost and expense, the said lands, or any part thereof, by the application of good pure bone manure, on the permanent pasture land, at the rate of not less than 12 cwt., but under 20 cwt. to the statute acre; the same being approved of by the said landlord, and such approval together with a certificate signed by the said landlord, for the amount, then, and in such case, but not otherwise, the said tenant, on quitting the said farm, or his representatives, in case of his death, shall be allowed the amount stated in such certificate, after deducting therefrom a tenth part thereof in respect of each entire period of twelve months that shall have expired since the date of such certificate.

5th—For having improved, at his own cost and expense, the said lands, or any part therefore, by the application of good pure bone manure, on the permanent pasture land, at the rate of not less than 20 cwt., and under 30 cwt., per statute acre, the same being approved of by the said landlord, and such approval, together with a certificate signed by the said landlord, for the value of such bone manure, then, and in such case, but not otherwise, the said tenant, on quitting the said farm, or his representatives, in case of his death, shall be allowed the amount stated in such certificate, after deducting therefrom a twelfth part thereof, in respect of each entire period of twelve months that shall have expired since the date of such certificate.

6th—For having improved at his own cost and expense the said lands, or any part thereof, by the application of good pure bone manure, to the permanent pasture lands, at the rate of not less than 30 cwt. per statute acre, the same being approved of by the said landlord, and such approval together with a certificate signed by the said landlord, for the value of such bone manure, then, and in such case, but not otherwise, the said tenant on quitting the said farm, or his representatives, in case of his death, shall be allowed the amount stated in such certificate, after deducting therefrom one fifteenth part thereof, in respect of each entire period of twelve months that shall have expired since the date of such certificate.

7th—For having improved at his own cost and expense any of the mowing or meadow land by the application of bone manure, at the rate of not less than 12 cwt. per acre, the same being approved of by the said landlord, and such approval, together with a certificate, signed by the said landlord, for the value of such bone manure, then, and in such case, but not otherwise, the said tenant on quitting the said farm, or his representatives, in case of his death, shall be allowed the amount stated in such certificate, after deducting one-fourth part thereof, in respect of each entire period of twelve months that shall have expired since the date of such certificate.

8th—For bone manure proved to have been applied to arable land, the cost price to be allowed after deducting one-third of that cost price for each crop taken afterwards.

9th—For having improved the said lands, or any part thereof, by the application of good marl, at the rate of loads per acre, the same being approved by the said landlord, and such approval, together with a certificate signed by the said landlord, for the value of such team work and labour, then, and in such case, but not otherwise, the said tenant on quitting the said farm, or his representatives, in case of his death, shall be allowed and paid the amount stated in such certificate, after deducting therefrom one-seventh part thereof, in respect of each entire period of twelve months that shall have expired since the date of such certificate.

10th—For guano proved to be used within twelve calendar months before the end of such tenancy, one-third the cost price to be allowed.

11th—For oilcake proved to be given to cattle and sheep, within twelve calendar months before the end of this tenancy, one-third the cost price to be allowed.

12th—For all hay and clover that may be on the premises at the expiration of this tenancy, the same being of the previous Summer's growth only, a consuming price of two-thirds the value to be allowed.

13th—For all straw not converted into manure, that may be on the premises at the expiration of this tenancy, the same being of the last Summer's growth only, a consuming price of one-third the value to be allowed.

14th—For all dung and manure left on the premises at the expiration of this tenancy, the same being made from the last year's produce only, the value to be allowed, without reference to the use of oil cake.

15th—For all buildings erected at the entire cost of the said tenant, a fair sum to be paid, at the expiration of this tenancy, or the said tenant, or his representatives, in case of his death, to be allowed to remove, and sell the materials.

In Witness whereof, the said parties have hereunto set their hands and seals, the day and year first above-written.

Witness to the signing hereof by the said John Tollemache. }
Witness to the signing hereof by the said }

N.B.—In the valuation of dung and manure, no reference is to be made to the use of oil cake, as allowance for the latter is provided for in clause 10.

⁂ No allowance is made for lime, as its use interferes with the application of bone manure.

THE CHESHIRE TENANT-RIGHT AGREEMENT.

Sir,—I could not help being pleased with the perusal of a letter contained in your valuable Journal of this week's issue, written by Mr. Charles Newman, and which contains some excellent remarks on the relation subsisting between landlord and tenant, which, if duly carried out by the gentleman of whom such honourable mention is made, would perhaps be calculated directly or indirectly so to influence both the great and small landowners of our country, as that a very considerable advance might be made towards improving the condition of the tenant-farmer, by securing to him those privileges of which the exercise of his skill, the labour of his hands, and the investment of his capital render him so highly worthy. Viewing his observations in this light, I could not help hastily leaving the shadow for the supposed substance, and at once turn my attention to his specimen of high-toned liberality exhibited in the agreement which, in accordance with his wish, you kindly inserted in connection with his letter. But, sir, how sadly was I disappointed as I went on to read the terms of that wonderful production of an English landlord's benevolence and liberty-loving good-will towards his tenantry! and I verily thought that Mr. Newman must have read it either with a blindfolded understanding, or with a very prejudiced mind towards one side of the question; or, instead of lauding in the way he has, he would have denounced it as one of the most stringent, illiberal, and oppressive instruments that ever dropped from a steward's pen, in the shape of negative and positive stipulations, to be duly attended to by a poor serf of a tenant. And I would ask your correspondent carefully to read, mark, learn, and inwardly digest it once more, and try if he can find in it, with the exception of the guarantee of which he so much boasts, and which forms the basis of his remarks, one single redeeming feature to save it from the merited lash of the severest criticism.

Now, having taken the liberty, candidly and fearlessly, to express my sentiments on this marvellously generous agreement, I will notice in review some of its exceptional clauses, with the advantages they *confer*. First, then, one cannot help being struck with the elevated position of the favoured tenant; for, forsooth, he is raised to the honourable post of being game and dog-keeper to his landlord—of course wearing the green coat, decorated with the buttons of his order—and in the exercise of his office "forbid and warn off all persons from fishing and sporting and otherwise trespassing on the said lands." Also, here is the privilege of keeping the beautiful dog; he comes, we presume a puppy, is fed and reared for nought, and brought up to setterhood, or pointerhood, or greyhoundhood, as the case may be; "for he shall and will do this at his own expense," when he is transferred to his rightful owner, and another takes his place to be brought up to dog*hood* in the same way. Now comes, for this the great favour conferred as compensation for any little inconvenience and hinderance to business which looking after trespassers and dog-keeping may occasion, and "It is further agreed, that he shall be allowed to ferret rabbits and shoot hares from the (mark this!) 1st of February to the 1st of May." This needs no comment, the shooting and hunting season are all but over, and besides, every sportsman or otherwise knows the worthlessness of these filthy devourers between the periods mentioned. "And, furthermore, the said, &c.:" 1st, to this clause there can be no objection. But the most of the penalties mentioned in the 2nd merit the anathemas of the holy father, and deserve excommunication. Clause 4: Of this we will not complain; let every man quit when his term expires, though the tenant should have some safeguard to unavoidable contingencies as well as the landlord. Clause 5: May be good, but whether it may be more sin to convert milk into cheese when the hot weather is sure to spoil it before Monday, than it is to pull an ox or an ass out of the ditch on the Sabbath-day, is a question which the great teacher has not solved; but having laid it down as a rule, "that it is lawful to do good on the Sabbath-day," He has left it with his creatures to determine as to the particular matters to which that doing good is intended to extend, whether it be taking an ox out of the pit to save its life, or to making milk into cheese to save it from spoiling, to its owner's loss; hence, let every man be persuaded in his own mind, and let no man, whatever may be his station, tyrannize over another man's conscience, and bind him to do or not to do what he conceives to be lawful and right, or *visa versa*. Clause 6: No objection, except the prohibition of two white straw crops, which is preposterously absurd. Clause 8: "To do if called upon (of course), in any season, and at any time, 40, 50, 60, or more days' work, &c.," for nothing, we presume. Will this help him to pay his rent? Clause 9: This, in the estimation of every right-minded man, must carry with it its own condemnation; disease may kill his cattle, thunder-storms may destroy his crops, the loss is all to him, and his rent must be kept up, and—woeful!—the four winds of heaven may unroof his house, and strike its four corners, and kill his children with death, but he must at all events repair the house as well as bury his children, for so his landlord will have it. Other things might be noticed, but we turn from them, and for relief direct our eye over a beautiful property, with which I am surrounded, belonging to noblemen and gentlemen whose motto is unmistakably the one quoted in Mr. Newman's letter,—"Live and let live." Here the game is given to the tenant, and if he keeps a dog, it is for himself and his own use; here dwellings are made commodious and convenient; new dairies rise, out-buildings are erected suitable for all kinds of stock; and for all repairs, allowance is made at the rent audit. Then the tenant farms according to his own will, not taxed with any prohibition, as to white straw or green grass: he is allowed to suit his mode of management to his circumstances and the requirements of his stock, &c.; his landlord has confidence enough in him to trust to his honour; and why should not the tenant or occupier of the farm be as honourable as the proprietor? His honesty and skill, for doing what is right and just towards him in the tillage and management of his land—this is how it should be; and when that confidence, which ever must bind the agricultural, as well as the commercial interests of our country together, is extended and established, landlord and tenant, master and servant, will work well together, and prosperity and peace will be the stability of the times. Here I end. You are the tenant farmer's tried friend; if, after reading this, you think it worthy of a little space in your excellent paper, please to let it see the light, and meet the sight of those whose interests it is intended to serve; if you think otherwise, send it to the fire,

And believe me yours faithfully,
An old subscriber and constant
Oct. 17, 1859. READER.

THE NORTH WALSHAM AGRICULTURAL SOCIETY.

This society held its annual meeting on Wednesday, Oct. 26, in the pleasant little town of North Walsham, which welcomed its visitors with open arms. The weather was quite in keeping with the extraordinary game which the clerk of that department has been playing during the past fortnight, being cold and lowering; but British farmers do not mind a little cold, and a goodly muster was made from all parts of the surrounding neighbourhood. The show, considering it was confined to a district of Norfolk, was highly creditable both as regards quantity and quality. In the class of fat stock there was indeed some falling off, but this was explained by the fact that pleuro pneumonia has prevailed to a lamentable extent in the neighbourhood, many beasts which were intended for exhibition having been sacrificed. Still, the class of fat steers was highly commended, and excited general notice. The horse stock, both for agricultural and harness purposes, was exceedingly good, and there was a tolerable competition for several of the prizes, although this was not the case throughout the various departments. Samples of wheat and other grain, and also of hay and roots, were shown, and some of the latter were of considerable weight, the prize mangold being at the rate of 43 tons per acre, while the second best reached 40¾ tons. The land in this part of the country is very good, or it could not yield such results as these; results which obtain in a similar degree with regard to wheat, 24 coombs per acre having been obtained at Stalham on one occasion.

As regards the prizes, Mr. Christopher was awarded £4 for the best cart-stallion under four years; Mr. J. B. Porritt, £2 for the best under four year old; Mr. Beare, £4 for the best cart-mare; Mr. Bond, £2 for the second best; Mr. W. Burroughes, £2 (given by Mr. Mott), for the best cart-gelding; Mr. B. Betts, £2 for the best two-year-old cart filly; Mr. W. M. Bond, £1 for the best yearling colt or filly; Mr. W. M. Bond, £1 10s. for the best cart-foal; Mr. Horsfield, £1 for the second best do.; Mr. T. Dolphin, £5 (given by Lord Suffield), for the best hackney for riding or harness purposes, and Mr. T. Flavell's entry highly commended; Mr. J. A. Storey, £2 (given by Mr. W. L. Jex Blake) for the horse or mare between four and eight years old, and best calculated for harness purposes; Mr. Downing, £3 for the best hackney stallion; Mr. C. Cozens Hardy, £2 for the best hackney brood mare; Mr. J. G. Betts, £1 for the best hackney foal, and £1 10s. for the best riding colt (Mr. Wortley's entry highly commended); and Mr. Coote, £1 (given by Mr. T. Dolphin) for the best pony under 14 hands. It should be observed that in nearly every case the animals shown were bred in the district, and in very many instances by the exhibitor. In cattle, Mr. J. T. Mott was awarded £2 for the best bull; Mr. T. Dolphin, £2 10s. for the best horned cow; Mr. Storey, £1 for the second best; Mr. Ash Rudd, £2 10s. for the best polled cow; the Hon. W. R. Rows, £2 for the best horned heifer; Mr. R. Wortley, £1 for the best yearling heifer, and £4 for the best fat steer of any breed bred by the exhibitor; Mr. Mott, £2 for the second best do.; Mr. R. Wortley, £2 10s. for the best fat steer grazed by the exhibitor; Mr. Beare, £1 10s. for the second best do.; Mr. R. Wortley, £1 10s. for the best fat steer or heifer under three years old; and Mr. Neave, £1 for the second best. In sheep, Mr. Page Bleakley carried off all the prizes both for hoggets and shearlings. In swine, Mr. R. Wortley was awarded £1 10s. for the best boar; Mr. Page Bleakley, £1 for the second best; Mr. R. Wortley, £2 and £1 for the best and second best breeding-sow; Mr. T. Dolphin, £1 10s. for the best litter of pigs on the sow; Mr. R. Wortley (given by Mr. W. Burroughes), £1 for the second best ditto; and Mr. M. Neave's premium of £1 for the best fat pig was awarded to himself. Mr. R. Wortley received £1 10s. for the best two acres of mangold-wurtzel, and Mr. Salmon £1 for the second best. The prize of £1 10s. for the best five acres of Swedish turnips was divided between Mr. W. Postle and Mr. R. Wortley, each of whom produced 25 tons per acre, Mr. Christopher being awarded £1 as second best (24 tons per acre); and Sir T. F. Buxton's prize of £5 for the best crop of roots grown on a farm of not less than 100 acres, taking the quality of the soil and cultivation into consideration, was divided between Mr. E. Ling and Mr. R. Wortley. Mr. B. Betts was awarded £1 for the best wheat; Mr. R. Wortley, £1 10s. and £1 for the best and second best barley; Mr. Christopher, £1 for the best three coombs of oats; Mr. R. Wortley, £1 (given by Mr. H. Wright) for the best 5 cwt. of trefoil-hay; and Mr. H. Wright, for the best 5 cwt. of clover.

The speaking at the dinner, at which Lord Suffield presided, was above the average; although Colonel Coke, as one of the county members, rather set his foot in it by disclaiming politics, and then observing that the county did not want the "stand-still opinions" of his hon. friend Mr. Hawes, who represents East Norfolk in the Conservative interest. At this there was a loud outburst of disapprobation, and the gallant colonel was obliged to get out of the scrape as well as he could by saying that the company appeared rather dull, and he thought that he would stir them up a bit. But, this little escapade apart, the proceedings were really of an instructive character. Mr. Mott, in proposing the health of the judges of stock, said all present were old enough to remember the grumbling which followed the abolition of protection; but where was it now, notwithstanding the present low price of wheat? To this Mr. W. Burroughes rejoined, that the farmers had given up their complaints "because there was no remedy." This observation elicited loud applause; but did not satisfy Mr. Mott, who said the real secret was that the farmers had learnt that the true basis of success was the grazing of stock. Mr. Mott then passed on to speak of the state of agriculture in France (which he had visited in the course of the summer), describing it as most wretched. Mr. Mott forcibly exposed the effects of the excessive subdivision of landed property, which there is little doubt is a leading cause of the want of stability which has characterized French society since the first Revolution, and said everything was in the most primitive state. He had seen crops being threshed in the open air, there being no barns and no yards: the haymaking was the most ridiculous and tedious proceeding imaginable; the sheep all looked as if they were dying of consumption, and were as hard and tough as a piece of leather; and during a stay of a month he never saw a fat animal of any kind. Mr. Pitman, in proposing the "Successful competitors," also urged the necessity of increased attention to the production of beef and mutton, and suggested the formation in the eastern district of a kind of agricultural "synod," such as that supplied by the Bath and West of England Society, from which, he said, great benefits had been derived: among other advantages being a reduction in the price of some implements. Increased attention must also, Mr. Pitman urged, be paid to the welfare and comfort of the agricultural labourers, who appeared to be every year becoming more scarce. This last remark induced Mr. Mott to observe that he hoped before long the reaping machine would be much improved, At present it did its work in so unsatisfactory a manner, that no one would invest money in it; it would not, in fact, cut barley. Mr. Kemp denied that this was the case, and said he would guarantee to cut Mr. Mott's barley with his machine. Mr. Beare, who may perhaps be styled the "father of the society," spoke in reply to the toast, and said he believed there was now a growing spirit of improvement among the farmers. A few years since a stupid class of men told the country they could buy corn cheaper from foreigners, and tried to upset altogether the agricultural interest, which did not then receive due support from Government; but the farmers had now so greatly improved themselves, that they were not only able to compete with their neighbours, but with all the world, and those who were once their opponents were now great supporters of agriculture, for they saw what a blessing it was to England to be able to raise food for her own population.

It is not a little singular that the argument, which now seems to find increased favour, that farmers must depend more upon the grazing of stock for the future, is urged by a recent official writer on American agriculture, in a report issued by the authority of the United States Government. The reason, in the case of our Yankee brethren, is different. Their land has become so exhausted by constant cropping that it requires to be recruited by the manure of sheep and stock. The American farmer, it is urged with great apparent force, must either do this in the old settled States, or be "off to fresh fields and pastures new."

THE LATE FROST.

THE HARVESTING OF THE MANGOLD CROP.

The harvesting of this crop met with a severe check, owing to the sharp frost in the nights towards the end of October. A frost so intense, and at such an early date, has not been experienced for some years. The crop has suffered much from its severity. The utmost care will now be requisite, and no little judgment must be exercised to effect its safe preservation. The roots have been so much frost-bitten as to deprive them of their mottled colour, and till this returns it is unsafe to lead them. I have examined the remaining of my crops unharvested this morning, Tuesday, Oct. 25th. There is scarcely a root which I should consider to be in a fit state to put into grave. I therefore take the earliest opportunity I have to call attention to it, with the view of offering a few suggestions, which, if carefully attended to, will, I think, contribute much to its future safety, and cause it to be preserved in that condition and quality so essential to the improvement of the stock consuming it.

This crop has now become of paramount importance in many districts, nearly one-fourth of the fallow crop being mangolds; and the weight grown per acre is enormous, amounting to something like an average of forty tons per acre of roots only, besides an excellent crop of leaves, which should be carefully fed off by aged ewes having short teeth, in doing which they will be readily fatted, and the roots remain uninjured; or they may be plucked or twisted off (not cut), and led off to the breeding ewes or store sheep, upon which they will feed satisfactorily, and thrive well. The roots must, if possible, be secured in that safe manner which shall prevent fermentation in the grave; if not, great loss in saccharine matter and nutritive value results, and not unfrequently the crop itself is lost by rotting.

The proper and advantageous harvesting of this crop, then, is of great importance; and to those who have not fully secured their crops, I offer a few suggestions and remarks.

My first and most important suggestion is—to let them alone. Do not, on any account, commence taking up at present. The roots must stand till they recover their former healthy appearance, or as nearly so as circumstances will admit. It is almost certain destruction to grave them as they are. The season is an early one; and a few fine days will suffice, not only to thaw them thoroughly, but to cause the vegetating process to be renewed in almost every root. As soon as this has taken place in any great degree, they will then again be fit for harvesting, when all hands must be set to work to get them up speedily. This suggestion is the result of experience; my own crops have been in this way safely secured many a time, when they have been caught by a like early frost. I have been a considerable grower for more than thirty years, and, as an old grower, most confidently recommend this course in the present crisis.

It cannot be expected that all the roots will be perfectly healthy, therefore all decayed or decaying ones must be thrown aside; otherwise, if carted up with the rest, they will soon set the whole grave in a fermentation, which of all things must be avoided. In order to prevent this, the grave should be left open so long as the weather will permit; but if it is variable, the sooner it is nicely thatched down the better. This is best done by drawing straw or stubble into yelms, as for thatching, and laying them in order on the grave, so as to shoot the rains off, and thick enough to prevent injury from a slight frost, the whole to be fastened on by spits of earth at intervals. In this way the grave may, in open weather and a mild season, remain for two or three weeks, when it will be desirable to make it permanently safe by either earthing-up, or further thick layers of straw or stubble; the latter is the safest for these frost-bitten crops, as permitting greater ventilation throughout.

We shall of course be greatly disappointed and sorely perplexed if this frost should continue. Happily, while writing I hear the rain pattering against the window pane. Should it, however, return before the crop is secured, what is to be done? I still repeat, let it alone. It is to no purpose to grave frozen roots, or roots but recently thawed. They must be left standing, and be brought into consumption as the best judgment of the farmer may dictate. They may not constitute very nutritive food, but they may be thus used with advantage in conjunction with hay, straw, cut chaff, &c., &c. Of course, if at any time during open weather a chance arises for leading, by all means take advantage of it; but even then its consumption should be proceeded with: it cannot be expected to keep well. All kinds of stock, including horses, may be fed with it; and as affording a means of economising and saving other food, it may not be attended with any great loss in the end, and thus the disappointment and inconvenience may be but little felt.

Unquestionably this early and almost unexampled frost has taken us all by surprise, and very few growers have been fortunate enough to secure their crops. Those who have may rest satisfied that it had arrived at maturity, and no loss need be apprehended from early harvesting. The crop perhaps may be said to have ripened prematurely; but notwithstanding it was ripe for gathering, and although this premature ripening might be detrimental to the crop, it will not interfere with its keeping in grave, or injure its quality to any extent. Much, we are happy to know, has been safely secured, and will constitute a food supply when all other fails. In this respect, it now stands at the head of our root crops, and bids fair ultimately to change the whole order of spring grazing, because it furnishes a good supply at the very time when none but the earliest grass pastures are ready, and before early cabbage or early tares, clovers, &c., are in sufficient growth to be stocked freely.

It surely cannot be requisite, after so much has been written on the storing of mangolds, to reiterate well-known facts, *i. e.*, that it is desirable to put them into a grave in a dry and clean state: the grave not to exceed eight feet in breadth, and carried up into a narrow ridge at a corresponding height; that it should then be immediately thatched down by straw or stubble yelms, and so remain until all evaporation ceases, provided the season will permit; otherwise, if frosty, then to be slightly earthed up to within a foot or two of the top, and finally the top to be covered with stubble as thickly as it will lie. This is the safest course; but they will generally keep well if thickly covered with earth, provided time has been given to allow any fermentation to pass away. In the latter case it is requisite to uncover the top in the early spring months, or the growth of the roots in grave will soon cause them to rot. For immediate use they may be put together in any reasonable quantity or bulk. I have some in hovels now lying from twelve to fifteen feet in thickness, in which state they take no hurt for several months, provided they are put in clean and dry. I would further remark, that the roots are much sooner fit food for cattle from the hovels than from the closed-up graves. In fact, they are not at all proper food in any quantity till a portion of their watery nature has been dissipated; when this has been sufficiently extracted, and without any fermentation having taken place since they were stored, no food the farmer can grow is superior, and scarcely any is equal to it for feeding purposes. It is an invaluable root, and cannot be cultivated too largely. P. F.

CABBAGES.

The best variety of the cabbage plant is known in the common white or Yorkshire drumhead cabbage, so called from the top of the head of the plant resembling the upper part of the drum. The vegetable grows with a fibrous root, a branched, smooth, and leafy stem, upright and fleshy, carrying a number of smooth, alternate leaves, oblong and roundish, which are closely gathered into large, compact heads, oval or globular. The inner leaves lie closely over one another, curling inwards, till by degrees the heads are formed in many cases of a very large size. The tribe of plants yield an abundance of seeds, which is easily managed in practical use. Cabbages tend strongly to putrefaction, and run into that state sooner than almost any other vegetable. The putrified smell is most offensive, greatly resembling that of putrid animal substances. White cabbages are most fœtid, and the red the most emollient or laxative. An endless variety of hybrids has been produced, and kinds of cabbages are almost undistinguishable, arising from accidental impregnation by means of bees carrying the pollen from one place to another in search of honey. The seeds are sown in August, on warm beds of ground, well manured and pulverized; where the plants remain during winter, and are pulled for being planted in the field in the following April or May. An over-luxuriance in the plants, arising from a very favourable autumn, may be checked by transplanting. One pound of cabbage-seed will produce about 24,000 plants, and about 8,000 plants are sufficient for an acre of ground in drills.

Cabbages require the strongest loamy soils, tenacious and friable, deep, earthy, and moist. The climate must be damp, with frequent and abundant rains, and the dry seasons not long, nor attended with an aridity of a parched continuation. These lands are heavy in the composition, and stiff in the subsoil, and require the strength of three or four horses in ploughing the winter-furrow, which is done in the months of November and December. It is essential that the winter ploughing is deeply done in seven or eight inches, in order to afford soil for the future processes of working the land; and as early as possible, that the soil may have the benefit of frosts and thaws, for the purpose of reducing the texture. An early winter-ploughing is very beneficial to soils of every kind. Clay lands are penetrated by rains and burst by frosts, which break the texture by the alternations; and light soils of every kind acquire, by lying during the winter, a firmness and consolidation, which gives a necessary cohesion of particles that is observed during the summer, and a moisture is usefully maintained. So soon as the dry weather of spring permits the land to be ploughed, the operation is done across the winter-ploughing by means of deep and narrow furrows, which cut the earth into thin slices that are easily broken, and also raises soil from beneath that serves for a loose pulverization of the ground. A severe harrowing is applied, which tears the clods and separates the weeds. A cast-iron roller of a ton in weight follows the harrowing, crushes the lumps of soil, and consolidates the ground; another harrowing pulverizes the broken clods, and drags the weeds into view. The stones and weeds that now lie on the surface of the ground are gathered by hand, and removed from the field. This first operation of preparing the land for cabbages will be done some time in the month of March; and within two after, the same process is repeated by ploughing the land lengthwise, harrowing, rolling, and gathering stones and weeds from the surface. Another operation of the same kind will, in most cases, prepare the land by the 1st of May to be planted with cabbages. A furrow is drawn by the swing plough in the direction in which the drills are wished to lie, as deeply and widely as can be done by the strength of two horses. The plough returns in the same furrow, and throws the earth to the opposite side, forming two ridglets, one on each side of the furrow, with the horses walking on the sides of the first furrow, and widely apart; the plough travels up and down the sides of the first furrow, and makea a trench thirty inches distant, the left-hand horse walking in the furrow, and the right-hand horse travelling on the level ground, with a maintree of five feet in length, to enable the walking two drills apart. In this continuous way the land is formed into ridglets; and when the space becomes wide, a parallel furrow is drawn, and the same operations performed till the whole field is formed into drills, which are made deep and wide by the utmost power of the horses. Depth and width of drills are essential, the latter not less than thirty inches; and the previous ploughings must be deeply done in narrow furrows, the last ploughing across the field. So that the drilling, being lengthwise, crosses the last ploughing, which makes the best performance in every operation of drilling.

During the winter the farm-yard dung has been laid in a heap in a corner of the field, or in the lane outside the gate, and in a compressed and sloping shape by the carts passing over it to deposit the loads. Being turned over a few days before being used, an active fermentation takes place, and it will be in a state of vigorous advancement when laid in the drills to be planted with cabbages. Single-horse carts carry the dung, which is deposited in heaps, and regularly spread along the hollows of the drills in the quantity of thirty loads to an acre. The drills are split and reversed over the dung by the common plough throwing to the right hand the larger half of the ridglet, the right-hand horse walking in the furrow of the right-side drill, and the left-hand horse travelling on the top of the left-hand drill, the intervening ridglet being split by the plough, which is provided by a main tree of five feet in length, to allow the horses to walk widely apart over two drills. In returning the plough moves in a hollow, and throws a heavy furrow of loose earth over the drill from the opposite side, the horses walking each in a hollow two drills apart, with the plough moving in the middle interval. The dung is thus widely and deeply covered with loose damp earth thrown over it from both sides, the plough working in every drill as deeply as the horses are able to move the implement. A light roll passes along and levels the top of the drills, which consolidates the loose earth into a firm position.

The cabbage plants freshly drawn from the nursery-bed, with the extreme end of the slender fibrous root cut off, are brought to the field, and immersed in tubs of water with the roots downwards, and taken from the vessels as the plants are required for use. Persons provided with dibbles insert the plants on the top of the drills, at the distance of two feet from each other, making a hole with the dibble for the insertion of the plant to the depth it has stood in the nursery-bed, and pushing with the dibble the sides of the hole together, in order to give the plant a firm position. It must be very carefully observed not to insert the plants deeper or more shallow than they stood in the nursery-bed, as a transformation of the exposed or earthed-up skin is the consequence, and a necessary delay in the onward progress of the plant. All plants with a large foliage require much moisture, and the dung that is used for cabbages must be thoroughly moist, and even very wet, whether it be cool or fermented; the plants immersed in water, and the insertion in the ground should be performed in the wettest weather in which the work is possible to be done. When any plants are seen to be dead, the places must be immediately filled with fresh plants, in order to ensure a full crop all over the field.

When the plants of cabbages have attained a rising growth, and weeds have appeared in the quantity that may be expected from the kind of soil, the hollows of the drills are deeply ploughed by the miniature plough drawn by one horse, which lays a furrow to the centre of the interval from the side of each drill, in the closeness not to disturb the dung or shake the position of the plant. A miniature plough is the best scuffler yet found for stiff-bottomed lands. The narrow point of the share takes a better hold of the ground than any knives or cutting shares; and the double time spent in going twice in one hollow is economically expended in doing work well, instead of cheaply and slightly. Two ploughs are joined by slant bars over the beams, and placed one drill apart. Two horses walk in the furrows, and draw the implement, which bestrides a drill and lays a furrow from each side of the ridglet, finishing a drill by one movement with the power of two horses. After all the ingenuity in devising horse-hoes for drilled root crops, this very simple implement has not yet been equalled. The light scuffler with posterior knives will afterwards move the intervals, cut the weeds, and pulverize the soil, but always preceded by a ploughing of the hollows to move the earth for the operation of the lighter implement. The hand-hoe follows the first ploughing of the drills, cuts the weeds, breaks the clods, and moves the earth between the plants by passing the hoe crosswise between them. A careful hand-hoeing is equally necessary for the success of green crops with the efficient scuffling of the hollows of the drills, as both processes effect the same purpose, by provoking reciprocal combinations between the air and the soil for the benefit of the plants. Frequent stirring of the intervals has a very useful effect, and the drier the weather the better. The loosening of the earth allows the roots to spread, encourages evaporation, of which the moisture is imbibed by the leaves of the plants; and the last, but not least benefit conferred, is the pulverization of the soil for the advantage of the succeeding crops. Two or three performances of the operations of scuffling and hoeing will be sufficient for most soils—the miniature plough acting twice, and the lighter scuffler working so long as any weeds remain to grow. The lands adapted for cabbages are not the most productive of weeds, which are soon destroyed; but the ploughing and scuffling of the intervals, with the hand-hoeing of the rows of plants, are to be repeatedly done, for the purpose of moving and pulverizing the soil, raising moisture, and provoking combinations of aëriferous matters. The drills are earthed up in the end of summer by the double mouldboard plough, moving once in the hollow, and drawn by two horses walking apart at five feet or two-drill intervals. The furrow must be as deep as the plough can penetrate. Any tall weeds that may afterwards arise are pulled by hand.

Cabbages form the head in autumn, and by the end of October the plants will have attained the full size of the year. The outer leaves are liable to premature decay, and fall off, previous to which they may be gathered by pulling away the loose leaves, which are very useful food for swine and young cattle. In November the stools are cut from the stems by hand-sickle, and cleaned from the outside decayed leaves, carried to the homestead, and piled up in a dry situation in the manner of cannon balls, and ending in a ridge of a single stool. The longitudinal pile is thatched over with straw, which is held down by ropes of the same materials The round form of the stools leaves many interstices in the pile for the admission of air, and materially prevents putrefaction. Cabbages are preserved in this way for use throughout the winter and during the spring months. The stems of cabbages are pulled by hand from the ground, the fibrous roots with the adhering earth cut away, the stalks cut into small pieces, and strewed in the store-yard of young swine, to be chewed and eaten, or reduced into manure. The stalks are very indecomposable, and if left in an entire condition, the destruction is tedious and long.

Cabbages are very generally used in the early winter by being drawn from the fields as wanted for use, without storing being practised. The roots are very beneficially given to milch cows, store cattle, sheep and swine, and are invaluable in the spring along with mangold for the lambing ewes. The taste said to be given to milk by cows fed on cabbages is effectually prevented by most scrupulously removing from the stools when given to the cattle, all leaves that show the least appearance of an incipient decay, as experience has most amply and satisfactorily shown that the offensive taste of the milk is communicated from this state of the leaves.

The average weight of a crop of cabbages may be stated at 25 tons on an acre. One pound of drum-headed cabbages, or 7,000 grains, consists of

	Grains.
Nutritive matter	430
Woody fibre	280
Water	6,290
	7,000

Cabbages contain 93 per cent. of water, and the composition on the nutritive scale is as follows :

Nitrogenous or flesh-forming ingredients	1.75
Non-nitrogenous or heat-giving.. ..	4.05
Mineral matter	0.80
Water..	93.40
	100.00

The quantity of nitrogen is 0.28 per cent., and that of carbon 8.63 per cent. The proportion is large between the flesh-forming principles and those fitted for the support of respiration. In the potato the quantity exceeds 20 of the latter to 1 of the former : in the cabbage it does not reach 3.1.

Swedish turnips are superior to cabbages in nutritive matter contained in the bulbs in the proportion of 110 to 107½, and cabbages are superior to the common white turnip in the proportion of 107½ to 80, and inferior to carrots in the proportion of 107½ to 187.

The advantageous cultivation of cabbages is much more limited in the range than that of turnips. The plant must have a humid climate, a deep rich moist soil, and a large allowance of farm-yard dung. All green crop plants require these conditions, but cabbages must enjoy them in the superlative degree; and, consequently, the range of utility is more contracted. But on all deep clayey loams that enjoy a humid climate there is not a more profitable crop than cabbages in yielding a weight of crop per acre, and in the useful purposes to which that produce can be applied. The comparison, in point of utility, comes to lie between cabbages and Swedish turnips, as both plants are raised on the most similar soils. Taking the expense of cultivating the two plants to be in all points equal, the superiority is usually granted to the turnip, as it is more nutritive, and can be managed and stored with less trouble; and from better withstanding the severity of winter, it can be used in a fresher state. The turnip is better calculated to yield fat and muscular fibre in animals, and the cabbage to afford milk and the juicy fluids ; they are also more laxative, and from whatever cause these qualities may arise, experience shows that the fact is certain. Hence the great value of cabbages for milch cows and to lambing ewes ; and the stools are best given whole and uncut, as the animal has a beneficial pleasure in biting the lump, and in exercising its jaws, sunk to the ears in a cabbage stool, which engenders a quantity of saliva very useful in promoting the digestion of the food, and for the secretion of the nutritious juices. The best use of cabbages may be in being consumed in the early winter, from October to February ; and being thus used fresh daily from the field, the mustiness will be avoided that is always found to adhere to a large body of succulent matters in connfiement. But a portion of the stools may be preserved for spring use in feeding the lambing ewes, the great value of the juicy food that is yielded to the animals being more than equal to the distasteful mouldiness that has formed matter of complaint against the storing of cabbages. But if even the one-half of the crop of cabbages can be preserved in a fresh and succulent state the benefit is almost incalculable, in having a quantity of juicy food at that most critical season of the year, and the most precarious time to the animal. On the whole, if Swedish turnips are generally preferred, cabbages will grow on soils beyond the production of turnips. The plant yields to none in value and utility when used under the necessary circumstances of soil and climate, and the means of a profitable consumption.

The roots of the cabbage-plant are thickly fibrous, and creep along the surface of the ground without any tap-root to penetrate and divide the soil, as is done by turnips, carrots, and parsnips, or dividing and heaving the earth as by the tubers of potatoes. There is no umbrageous foliage of the cabbage to shade the ground and retain moisture, as with mangold wurzel, potatoes, and turnips, which prevents exsiccation and hardening of the surface. When the cabbage heads are formed, the ground is wholly uncovered. On these points of great value to the land the cabbage fails in comparison with the other roots of cultivation ; hence the necessity of superior advantages to produce a crop of the plant.

DORKING AGRICULTURAL ASSOCIATION.

The prizes have been awarded as follows :

MANGEL WURZEL.—For the best four acres, on farms of not less than 200 acres, the silver tankard, to Mr, R. Clutton, Hartswood, Reigate. For the best two acres, on farms of not less than 100 acres, the silver tankard, to Mr. J. Holmes, Pleystowe, Capel. For the best acre, on farms of not less than 40 acres, the silver tankard, to A. K. Barclay, Esq., Bury Hill, Dorking. Highly commended : Mr. Harvey Nunns.

SWEDES.—For the best 10 acres, on farms of not less than 200 acres, the silver tankard, to Mr. R. Clutton, Hartswood, Reigate. Highly commended : Mr. H. Wise, Feltons. For the best five acres, on farms of not less than 100 acres, the silver tankard, to Mr. Caleb Ede, Betchworth. Highly commended : Mr. Holmes, Pleystowe, Capel, and Mr. J. Rose, West Lees, Dorking. For the best two acres, on farms of not less than 40 acres, the silver tankard, to G. A. Fuller, Esq., Rookery, Westcott. Highly commended : Mr. T. Page, Holmwood Farm.

TURNIPS.—For the best ten acres, on farms of not less than 200 acres, the silver tankard, to Mr. T. Wells, Phenice Farm, Great Bookham. Highly commended : Mr. Karm King, Shere. For the best five acres, on farms of not less than 100 acres, the silver tankard, to Mr. C. Ede, Betchworth. Highly commended : Mr. E. Charman.

ANNUAL INSPECTION OF STOKE EDITH ESTATE.

This interesting event came off on Tuesday, Oct. 16th, and, as the weather was favourable, a large party of invited guests, besides the goodly band of tenants of the Lady Emily Foley, assembled in the morning at the Leys Farm, and proceeded to pay a visit to each of the well-cultivated farms upon this fine estate. The various improvements were noted, the faults (where there were any) were freely canvassed, and the "progress" was one of combined pleasure and instruction; for no agriculturist, however practical and experienced, can make the tour of the farms on the Stoke Edith Estate, and see the high state of cultivation to which they are brought, and the judicious management adopted on most of them, without adding many a "wrinkle" to his previously-acquired knowledge. It is well known that the noble proprietress of Stoke Edith is herself a practical farmer of no mean repute, at least so far as having under her management a very excellent farm, where her bailiff, Mr. Wallace, presides in an exemplary style; and it is proverbial on the estates that her Ladyship not only takes great interest in agricultural pursuits, but understands the details of cultivation and feeding more thoroughly than many a country squire who derives his income from the soil, but does not know a mangold from a turnip, and has no more knowledge of the practice of husbandry than that mythical individual "the man in the moon." It is under the influence of such a stimulating example, and such equitable arrangements as here exist between landlady and tenantry, that a state of things has grown up on this estate which would hardly be credited by the outside world; and without saying that there are any "model farms," or that perfection has been in any one instance attained, we may fearlessly assert that the Stoke Edith Estates will honourably compete with any of similar extent in all this fair kingdom.

Mr. Mathews, of Edgbaston, Birmingham, and Mr. C. A. Mason, her Ladyship's confidential agent, led the company on their tour. Lady Emily Foley each year gives two liberal prizes to her tenants for the best cultivated farms. Mr. Mathews is the yearly judge, and the errand upon which he was this day so numerously attended was to make observations upon which to ground his awards. The expedition terminated in the usual agreeable way, with a banquet at Stoke House, over which Mr. Mason presided, Mr. Wallace occupying his accustomed place in the vice-chair. After the bountiful repast, the company was joined by the Lady Emily Foley, her brother, Lord Wm. Graham, M.P., and a party of visitors.

Lord WILLIAM GRAHAM took the chair, with her Ladyship seated on his right. After the usual introductory toasts had been proposed from the chair,

Mr. R. BIDDULPH proposed the health of the Lady Emily Foley, whose name was received with great enthusiasm. He had pleasure in availing himself of that opportunity of expressing the great gratification he had in going over the estates that day. He had seen some most excellent farms; some green crops which he thought could not be surpassed; he had witnessed great neatness in the hedges; in point of fact, he had seen a rich and wealthy country, which had done his heart good to look upon; and, in addition to that, he believed he had seen a happy, prosperous, and contented tenantry (applause). He expressed his conviction that the premiums offered by her Ladyship, for the best cultivated farms, had been of most essential service, not simply to the tenant farmers upon the estate, but also to the whole neighbourhood (Hear, hear, and applause). These were times in which a man did not look over his neighbour's hedge without in some measure following the example before him; and when it was known that all the neighbours would come and look, each man would take especial care to have everything done in the best way. These things must be carried on by the expenditure of a certain sum of money, and he was satisfied that it not only contributed to the welfare and prosperity of the tenant, but also to the prosperity of the landowner (applause). It had been too much the practice to think that the interests of those two classes were antagonistic, but that was not the case, for what was a benefit to the one was also a benefit to the other.

Lord WM. GRAHAM returned thanks on behalf of his sister, and especially thanked Mr. Biddulph for the kind terms in which he proposed her health. Looking at the great competition amongst the tenants on the estate, he should say that Mr. Mathews must have had a very difficult task to award the prizes on that occasion (applause).

Mr. JANCEY, of Nunnington, proposed the health of Lord WM. GRAHAM, who congratulated them upon the way in which the harvest had been got in this year, although he believed the difficulty in obtaining hands had been felt to some extent in this part of the country, as in other parts of England, though not perhaps in the same degree; but he apprehended that if this difficulty of obtaining labour should continue, it must lead to some extent to the gradual introduction of agricultural machinery. During the harvest he had seen a reaping machine in full operation; it performed its work in a most satisfactory manner, cutting the corn even where it was laid, not in a large flat field, but where there were undulations, so that it had to work both up and down hill. It was the American machine of McCormick's patent, made by Burgess and Key. It cut about 10 acres a day, and was calculated to save the labour of 12 reapers. The price was 40 guineas, and if they took the work of 12 labourers throughout a harvest at the price paid this year, they would almost save half the price of a machine in the first year. Perhaps one of the best ways would be for some individual to purchase a machine, and let it out to farmers, as they did the threshing machines; or an individual might contract to cut a field, and bring his labourers with him. Under any circumstances, if the scarcity of labour continued some such measures must be adopted, and he thought the reaping machine might be put to a satisfactory use.

Mr. W. TAYLOR proposed the health of the Rev. W. H. Lambert, who briefly responded.

Mr. MATHEWS then proposed the health of Mr. John Hodgetts Foley, one of the Members of Parliament for East Worcestershire. For many years after Mr. Foley went to live at his beautiful seat of Prestwood, he was in the habit of dining twice a year with his tenants. He found that the rent-day dinners were not exactly that sort of jollification affair which his generous nature admired, and that there was always a sort of grumble associated with it; for it was pretty well understood that a man with empty pockets is not inclined to be in the best mood, and that tenants sometimes looked upon the rent day as a sort of institution that would be much better abolished (laughter). To ameliorate that state of feeling as much as possible he originated these inspections of estates, and had continued them for twenty-five years, the last fifteen of which he (Mr. M.) had had the honour of being his judge. He could safely say that no landlord in the world (of course excepting her ladyship at Stoke) met his tenants with greater cordiality than he did, and that the tenants no longer wished the rent days to be abolished, but rather wished them to continue, as the pleasure of the inspection was more than equivalent to the two rent days (laughter and cheers).

Lord W. Graham proposed the health of Mr. Biddulph.

Mr. Robert Biddulph said he had had great pleasure in meeting them at the meetings of the Ledbury Agricultural Society, in which he took great interest, believing that these societies have a vast deal to do with the agricultural improvements going on in the kingdom. He was very sure that a meeting like this must tend much to the improvement of a district. A few words had fallen from Mr. Mathews in proposing the health of Mr. Hodgetts Foley, as the founder of those meetings, in regard to their beneficial effects, and he must repeat that the more they could get the agricultural class to mix, the more their feelings would be drawn together, and much more interest would be taken in each other than would under the old system. Mr. Mathews had also said that a tenant farmer had some objections to rent day. Now he happened to be connected as trustee with one of the largest properties in the kingdom, and had there met with large parties of tenantry, and had heard many exclaim, that they were never so happy as when they had paid their money, because then they were independent men.

Mr. Mathews then read the following:—

My Lady,—I beg to report to your Ladyship that I have awarded the prize for the best cultivated farm of the 1st class to Mr. J. B. Vevers; and that of the second class, to Mr. Richard Sexty.

I cannot refrain from expressing my admiration of the persevering exertions of Mr. Sexty. For several years he has laboured hard to convert one of the worst cultivated farms to the best of its class; and I am not clear that, taking into consideration the disadvantages which the character and situation of the farm involve, his is not in the most perfect state of cultivation of any upon your Ladyship's estate.

I am unwilling at all times to speak of individual merit, except so far as it relates to successful competitors, lest I should unfortunately incur the imputation of making invidious comparisons, and thereby engender jealousy and dissension; but, in the present case, I feel I should not do that justice to Mr. Hall which is especially due to him, if I did not remark to your Ladyship upon the excellent cultivation in all the branches of good husbandry which his farm exhibits. I have the honour to be, my Lady, Your Ladyship's obedient faithful Servant,

The Lady Emily Foley. J. Mathews.

Her Ladyship then distributed the handsome certificates which entitle the successful competitors to receive the prizes.

Mr. Mason then remarked that they had a small society on the Stoke estate for promoting good ploughing and other agricultural matters, and to which it had been then thought advisable for the future to add a premium for thatching; for good thatchers were exceedingly scarce in that neighbourhood, and those who could thatch would not attend to it, although it was a branch of husbandry at which they could earn good wages. Indeed the state of the ricks on the estate had been remarked by some friend present as not being so creditable as the advanced state of cultivation visible on the farms. This little society was not intended to interfere with other local societies, but simply to endeavour to promote that which lies at the root of good husbandry—good ploughing. They also considered it better that in future years, the person winning the first prize should not be eligible to take it the following year, with a view of not discouraging other competitors. He then read the list of awards for ploughing, after which,

Mr. Biddulph proposed the health of Mr. Mathews, who said his greatest pleasure on these occasions was to have his name received among the competitors for the prizes with good feeling and good-natured forbearance (Hear, hear). He had no cause to favour anybody, and wished to do what was strictly fair and equitable to all. He believed that where the wish to do honestly existed, a very little judgment went a long way in doing what was right. Reverting to the subject of fencing, he said he thought, when first he came among them, that many persons considered good fencing to be all very well, but not absolutely necessary as a part of agriculture. But he had seen within the last few years that the opinion was altered. There were not many fences now 12 feet high, but there used to be, and if they had one of 4 feet high by the side of one 12 feet high, they would see the difference: for every yard forward in the 12 feet fence they would have about six superficial yards, and about one-third of that in the other, and while a man was working up 100 yards of the high one, a man would do 300 yards of the other. There was an economisation of labour well worthy the attention of any man. Besides that, there were not a tithe of the sparrows on the estate as there were some years ago. There was a time when 2d. a dozen was given by the overseers of the parish for sparrows' heads, and a good deal of money they had to pay. The sparrows had good roosting and building places in the high hedges, but now both were gone, the hedges were brought into a modern condition, and in the course of the next two years he thought they would be much better done. They had heard a good deal with regard to steam ploughing. He always observed that no implement was superseded until it had arrived at perfection; and when a thing had arrived at that pitch, the ingenuity of man devised something that would supersede it. When the coach had arrived at the greatest possible pitch of speed, the locomotive stepped in and drove it out of use. The same would be the case with the plough. He apprehended it would be a long time before they would have the steam plough upon those estates, although it had recently been most materially improved. In Birmingham, when an order came from abroad for some piece of machinery, and they did not know how to set about it, the manufacturer called in a machinist, who dealt with the scientific part of the subject, and who best could tell how to accomplish the work. Proper tools were procured, and the manufacturer realized more by the order than if he had worked with improper tools. The plough a few years since was a very rude implement, though now it was in some instances as nearly perfect as possible. Ransome's, Howard's, and other ploughs were very celebrated over the country, but not perfect. He did not know that he could render those gentlemen agriculturists around him greater service than by calling their attention to the plough used by Mr. Wallace. So long as that plough was put in competition with the rest on the field, so long would that plough gain the prize, notwithstanding that the workman might be an indifferent workman. He did not care what the ability of the ploughman might be, if he had not the plough to do the work with. He thanked the gentlemen on the estate for the considerate manner in which they received his hints, for he found they were paying a little more attention to their green crops than formerly, and he could assure them there was no branch of agriculture that would turn in more money than their grass lands, if properly managed. Mr. Mathews then paid a high compliment to Mr. Sexty as a farmer, and to his hedger as a workman, and requested to be allowed to present the latter with an improved tool for such work. It was comparatively easy to dress a well-formed hedge, but it required a great deal of skill, a great deal of patience, and a great deal of cleverness too, to convert some ragged hedges into good formed ones. He thanked them for receiving his decisions in the kind manner they had, and hoped the day was not far distant when they would not cavil with his judgment upon certain matters of husbandry (applause).

Lord W. GRAHAM proposed the health of Mr. MASON, the agent of that estate, who thanked his Lordship for the compliment, and the tenantry for the kind reception they had given it.

Lord W. GRAHAM, in proposing the health of the successful competitors, congratulated Mr. Vevers upon having won the prize for the fourth time. As long as they had such good farmers as Mr. Vevers, Mr. Hall, Mr. Taylor of Showle, and others whom he might name, the tenants on the Stoke Edith estate need not fear competition with any district of Herefordshire. He congratulated them on the continued improvement visible in the cultivation of their farms, which must be satisfactory to the tenants as well as the owner of the property, for it proved that they were an intelligent body of men, who kept their eyes and ears open, and were willing to adopt any measure calculated for the real improvement of agriculture (cheers).

Mr. VEVERS responded.

Mr. MATHEWS revived the vexed question of early planting. We had had three consecutive dry seasons, such as the oldest amongst us could scarcely remember, and 26 inches of water were now due to the land, a quantity equal to the average of a whole year's rain. That might or might not occur again, but he did not think that they should entirely come to the conclusion that he was wrong with regard to the early planting of turnips, because they had had three exceptionable years. There was an old saying,

> "Let it be dry or let it be wet,
> The weather always pays its debt,"

and he was certain that in one of the coming years they would be inundated, so that if they postponed the planting of their turnips until the middle of June, they would not be able to get them in at all. He did not mean that they should sow in January or February, but unless they got their roots in before the end of May the crop would not be so good. He was sure they had all been late with their mangolds. Those he had seen were small in size, and exhibited the fact of their not having been in the ground long enough, but large or small they must be stored. An astute and intelligent man in Birmingham said, with great confidence and emphasis, that the introduction of artificial manures will ruin the soil, and that in a series of years the ground upon which it is used will become almost sterile. In that doctrine he (Mr. Mathews) had no faith. No doubt the person had ample grounds for his opinion; but one thing must be manifest to all, that they were growing swedish turnips too thick. The crops obtained on freshly-broken land so far exceeded the others as to prove that they might grow turnips too frequently. If they attempted to grow two crops in succession, the second was an utter failure, because the first crop deprived the soil of its phosphates, and until they were returned, swedes could not be grown again. The question was, how often could they grow them? He thought that turnips, like clover, should not be grown so frequently as was attempted to be done. That was not the case with mangold wurzel, which had been grown for 25 consecutive years on the same ground, and therefore did not deprive the soil of that which was essential to their growth. It was a great blessing to know this, because if they failed in growing swedes, as they might in the course of the next twenty years, they could fall back upon mangolds. Then if they said mangolds were not so useful, because they did not come in so early, and were injurious to cattle unless they had been kept a certain time, the question arose whether they knew exactly how to use them. The more they knew the root the more they would be prepared to use it, and the better they would understand it. Some gentlemen might doubt whether he was right in this. Mr. Hollings, Mr. Pitt, Mr. Morris, Mr. Hall, and others, had got excellent swedes, considering the season, and they might be contented to go on growing such swedes. He would put them on their guard not to depend entirely upon swedes, but grow some mangolds every year. He did not know much about the new sugar cane (holcus saccharatus); but that he saw at Mr. Vevers's did not seem to have been cut, and could not have been of much use. [Mr. VEVERS: Not yet.] If left in the frost, it would not yield much "sugar," but in these days no green crops were unworthy of consideration, for as population and the demand for meat were increasing, they must pay attention to everything that offered.

Mr. BAKER said he had planted some of the Chinese sugar-cane in January, had cut it three times, and it was still growing. He used it as green fodder for horses, and had no idea of the weight it would produce per acre.

Mr. BIDDULPH thought they had not lately succeeded in growing swedes so well as they had in other matters. The mangolds were comparatively a new crop in this country, but in the Lothians and Northumberland the people were convinced that they could not grow swedes to advantage without a longer time between the crops. The swedes he had seen that day were beautiful, and the number of tons per acre must be very good indeed; but other green crops were worthy of every attention. Mangolds were good in summer, after the swedes were gone. He had some in July of last year, perfectly good and sound, and it must be to their advantage to grow more of them. He was glad Mr. Mathews had broached this subject, and he hoped they would all pay serious attention to it. He did not know how far Mr. Mathews's friend was right, but he confessed his fear that it would turn out that artificial manures would not have a permanent effect. They were stimulating, but he was doubtful whether they would always continue to act.

Mr. MATHEWS said he was one of the judges at the Birmingham show of roots last year, and found that some roots were exhibited two years successively. He did not disqualify them on that account: on the contrary, it showed the value of the root. The roots he referred to were Yellow Globe turnips, and weighed about 28 lbs. each.

Mr. W. TAYLOR, in the course of some remarks, said draining had been a hobby of late years, but it was a question whether it had not carried off the moisture they wanted. Mr. Mathews had said that if he (Mr. Taylor) would produce three good turnip crops in five years, he would acknowledge himself to be wrong about the advisability of early planting. He had already grown two, and he thought the third was now coming on (Hear, hear). The way to grow turnips was to put the land in good order, and grow them quickly, like cucumbers; they must never be checked. If put in too early, all roots had a tendency to run to seed. On some land it was beneficial to plant earlier than on others, but those who attempted to plant very early would surely be beaten.

Mr. JANCEY said it struck him that we had much more rain in the latter part of April and May than in June, and as summer progressed we expected more dry weather. If Mr. Mathews inquired when the swedes were put in, he would find the early swedes suffering from the blight and mildew, while the late sown were in a flourishing state. As long as he could remember, early-sown swedes suffered much from mildew, and, unless in an extraordinary year, had never come to such maturity as those planted in the last week in May or the beginning of June.

Mr. MATHEWS admitted that a great deal of rain fell in

April, but he never advocated April planting. He said they should be put in before the expiration of the month of May.

Mr. McCann, being appealed to for an account of the farming improvements at Malvern, and especially the growth of the holcus saccharatus, said he believed it would prove to be a valuable crop. He had cut it three times this season, and had some now fit to mow again. He believed it to be so prolific that much of it would be an incumbrance on a farmer; but every animal would eat it with a keen appetite, especially the pig. They must find a substitute for swedes, and he pointed out the great merits of the carrot as a feeding root. He planted his turnips early, and they had the mildew very badly, but the rain came and they got on; and as regards weight, he believed he could compete with his Herefordshire friends. Carrots were a profitable crop, and could be grown to a heavy weight. The carrot required deep ploughing, and at Malvern they were obliged to use a subsoil plough, as they were on the gravel. He put his seed in early in April, on a six or seven-acres piece, and the frost and snow came on them; but a better crop he had hardly ever seen. Subsoil ploughing had more to do with the goodness of the crop than artificial manures, of which there was not a handful in the whole piece. He put on ten cart-loads of rotten dung, and as much decomposed road scraping, which he had found to be beneficial. He showed some "long reds" at the Worcestershire show last week, averaging 24½ lbs. each. In answer to Mr. Mason, Mr. McCann said he used the holcus saccharatus green, and did not know whether any of his neighbours had harvested it like oats.

Mr. Mathews said he had grown carrots to some extent, and believed that if swedes failed we might fall back upon them with great success. The making of railways would aid them much, for if they found the land got tired of one description of carrot they could get another, and if they were too expensive to be used on the farm, they could be sent away into the more populous districts with great advantage. He planted 15 acres of red Altringham carrots 3 feet apart, and spent £25 10s. per acre in labour; he grew the carrots without manure, and sold them at 50s. per ton to people who fetched them away. If this could always be done, there was no question about the advantage of growing the crop. He did not mean to say it would be prudent for any person to spend that amount in labour, because the carrot crop might fail, and then there would be a considerable loss. He had grown 40 tons of white Belgian carrots to the acre. If Mr. Taylor was to give his land a good depth he would have thirty tons per acre from his carrots. Carrots would grow quite as well without manure as with it; they only required a good depth of soil, and they would grow as straight as a walking stick, and come up as thick as a man's arm. Manure was rather detrimental than advantageous to them.

Mr. McCann said that where he dug deeply he had not less than 40 tons per acre.

Mr. Taylor asked Mr. Mathews how he spent £25 per acre on the land?

Mr. Mathews said he penetrated it thirty-six inches, and from the fifteen acres he took 600 tons of pebbles.

Mr. Taylor: Then you were quarrying (laughter).

The toast of "The Strangers" was acknowledged by Mr. Cadle, of Westbury-on-Severn, who was in favour of early planting, and said they might have mildew in the late-sown crops. He was surprised to see manure standing in the fold-yards when it would be better on the land. When carried out, the sooner it was spread the better, but he had seen some that must have lain there for months. The best thatching he saw was on the Leys farm, from which they started. In his district they had plenty of good thatching, and taught the labourers to do it.

Mr. Mathews said a stranger to the county should remember that here the farmers had work to do which was unknown in other parts; they had just finished their hops, and were engaged with their apples, &c.

Mr. Mason concurred in this view.

The pleasant party then broke up, having loyally sung the National Anthem, and drunk a parting glass to "Our next merry meeting."

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a Monthly Council, held November 2, present the Right Hon. Lord Walsingham, President, in the chair, Earl Powis, Lord Berners, Lord Southampton, Lord Feversham, Lord Egmont, Lord Leigh, Lord Tredegar, Sir Watkin Williams Wynn, Bart., M.P., Sir William Miles, Bart., M.P., The Hon. Colonel Hood, The Hon. W. G. Cavendish, M.P., The Hon. Augustus Vernon, Mr. Amos, Mr. Raymond Barker, Mr. C. Barnett, Mr. Barthropp, Mr. Bramston, M.P., Mr. Brandreth, Mr. Caldwell, Colonel Challoner, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. Humberston, M.P., Mr. Howard, Mr. Jonas, Mr. Kinder, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Professor Simonds, Mr. Robert Smith, Mr. Banks Stanhope, M.P., Mr. H. S. Thompson, Mr. Torr, Mr. George Turner, Professor Veolcker, Mr. Jonas Webb, Mr. Wilson (of Stowlangtoft), and Professor Wilson;

Reports were received from the Finance Committee, from which it appeared that the present current cash balance in the hands of the Society's bankers is £2,206 12s. 10d.; also from the Journal Committee and the Veterinary Committee, and from Mr. Humberston, M.P., the Steward of Refreshments at Warwick.

On the motion of Mr. H. S. Thompson, a Committee was appointed to consider and report on the future editorship of the Journal.

The following new Members were elected—

Calcott, Charles, Belton, Shrewsbury.
Edwards, Henry, Broadward, Leominster.
Field, Henry, Tulse Hill, Surrey.
Goodwin, Josiah, Millman-street, London.
Harman, The Hon. King, Newcastle, Co. Longford, Ireland.
Hobson, John George, Long Sutton.
Hill, Lord Edwin, 24, Belgrave-square.
James, Richard, Llanrwst, North Wales.
Johnson, Thomas, The Hermitage, Frodsham.
Leggatt, H. B., Brownwich, Titchfield, Hants.
Leggatt, S B., Crofton, Titchfield.
Lewes, Colonel John, Llanlean, Lampeter.
Milward, Dawson A., Tullogher, Co. Kilkenny.
Rudyerd, Henry, Charlwood, Crawley.
Scarsdale, Lord, Kedleston Hall, Derby.
Sheldon, John, Durham.
Smithers, William, Sondes Place Farm, Dorking.
Spill, George, Old Farm House, Stepney Green.
Williams, G., Buckland, Faringdon.
Wing, Thomas Twining, Goldington, Bedford.

The Honorary Secretary reported and laid before the

Council the applications and testimonials he had received from candidates for the vacant office of Secretary to the Society. The Council appointed a Committee of 13 to take into consideration the testimonials of the different candidates who have come forward, and to place before the Council such names as they may think eligible (not less than 10), from which list the Council shall choose the secretary.

The Council then determined the method in which the election should take place.

The Honorary Secretary reported that the agreement with the city of Canterbury relative to the Society's country meeting in 1860 had been duly signed by the Mayor, and the corporate seal affixed. The Council authorised the Honorary Secretary to sign and affix the Society's seal to the same.

A communication was received from Mr. Smith relative to steam cultivators.

The Council appointed the General Canterbury Committee, his Grace the Duke of Marlborough being the Chairman.

A communication was received from the Honorary Secretary of the Local Committee at Canterbury, relative to Local Prizes which they propose to offer. The subject was referred to the General Canterbury Committee to report on.

A communication having been received from Mr. Richard Stratton, stating that he had made an unintentional error of twelve days in the age of the bull-calf to which the second prize at Warwick had been adjudged, the Council decided that the prize should go to the "Reserve Number," given in the judges' award, viz., No. 91, Lieut.-Col. Towneley, of Towneley Park, for his bull calf "Bow Bearer," by Baron Hopewell, out of Frederick's Victoria.

A communication was received from the Foreign Office by direction of Lord John Russell, accompanied by an album (containing portraits of horned cattle shown at the Vienna Exhibition in 1857), the Imperial Ministry having transmitted the album for presentation to the Society. The Council ordered thanks to be returned for this and other presents of books which were laid on the table.

The Council adjourned to its monthly meeting on Wednesday, the 7th December.

LANDED TITLE INSURANCE COMPANY.

It is not with much surprise that one hears of any proposition for the establishment of another new Company. In fact, the only difficulty would seem to be in hitting on anything that has not already become the care of such an associated interest. We have Companies for building our houses, and for baking our bread, for supplying us with water, or for brewing us beer. We have one Company that is anxious to offer us substantial consolation should we break an arm or even damage a shin; many others that will be happy to guarantee our lives outright; and a third which, if, despite all this provision, we ever should die, will be delighted to bury us on the best and most economical terms. It would be hard to say what a man might not have shares in, or what duly-registered Company he is not unwittingly benefiting by eating, drinking, or sleeping; by working, playing, or positively doing nothing at all. The most curious calculations have been applied to all these various phases of existence, and the law of chances estimated accordingly.

But it is not merely the keen City man that is engaged in this kind of business. The country gentleman and well-to-do farmer have also a turn for it, and figure over and over again as managing directors, trustees, presidents, vice-chairmen, and so on. There are Companies for improving estates, or with the more direct object of draining the land. There is one Association insures your homestead against fire, and another your stock against disease. This will supply you with the best of artificial manures, and that is just about to do as much with the choice of machinery. Nowhere, indeed, has the speculator of late years looked with a more anxious eye than to the pursuits of agriculture. There are few of our readers but who can readily remember some wild scheme or other they have been solicited to take a part in. One or two good names were only wanting to set the thing going, and the benefit to the rural districts, and to the shareholders more especially, would be something extraordinary. Just at present, however, there is nothing very particular stirring. It is true, as we have hinted, that the long-talked-of Implement Depôt is about to be opened by such a means; while the Smithfield Club appears to be inclined to build on the same terms, and shares in the Islington Show-yard already begin to be talked of. Either of these, though, must be necessarily somewhat circumscribed in its action. There is not that unlimited range and general bearing so essential to the development of a really great or national scheme. A few magnate manufacturers may start the one, and the very Club, of its own strength, the other. Like, then, the monarch in classic story, we are still on the look-out for a new pursuit; a business, however, rather than a pleasure, and one in which we may make the most of our spare time and capital.

At this opportune juncture Mr. Wren Hoskyns turns up. Mr. Hoskyns is essentially what our American friends would call "a smart man," He was one of the first, in modern times at any rate, to invest the sober, serious, plodding subject of agriculture with a liveliness and humour as unusual as it was successful. He dared to publish a book upon farming, with illustrations by George Cruikshank; and, although the letter-press and the woodcuts were admirably adapted to each other, everybody allowed that it was not only an amusing but really a very instructive work. Since then, Mr. Hoskyns' connection with the Royal Agricultural Society has brought him more continually before us. He has been a Steward of the Yard, a joint-editor of the Journal, and is still a Member of the Council; and, if during this apprenticeship he has gradually lost some of his fun and quaintness, it is no doubt from his seeing, the further he goes, what a very serious business this really is. As something of a consequence of his position, Mr. Hoskyns now rarely speaks or writes without referring to the national Society. The point of his speech in his native county the other day still turned to Hanover-square; and a letter he has addressed to the *Times*—and which follows here—is armed with a similar introduction or recommendation. In plain truth, the progress and present state of the Royal Agricultural Society come somehow or other to be strangely mixed up with some very liberal notions on the influence of free trade, the rights of labour, and the absurdities of "the Old Families." All this of course must have additional weight as proceeding from a member of Council, who ushers himself in under the shadow of so important an institution. But still the argument is nicely balanced. If we have the Agricultural Society at one end of it, we have a new Society or Company at the other; and these are certainly the two points of a long letter. In a rather discursive discussion, Mr. Hoskyns gradually draws on to the insurmountable difficulties that yet oppose the transfer of landed property. It might be trying to offer anything very novel on this subject, and Mr. Hoskyns adds little to the argument that Parliamentary Committees, Law Societies, and Farmers' Clubs have already said on it. In fact, one goes on and on through the letter, with an increasing feeling of disappointment that a gentleman, generally so entertaining, has here so little to tell us. It is only in the last few sentences that the reader is repaid for his trouble. Mr. Hoskyns not only denounces these difficulties of transfer, but he is prepared to remedy them. His recipe, moreover, is as novel and original as the abuse itself is old and worn. In all the discussions we have listened to, in all the papers we have read, we remember nothing in any way referring to Mr. Hoskyns' plan. He asks for no registrations of properties. He insists on no simplification of titles. He looks to little or no further aid from the Legislature. Indeed, he rather defies so cumbrous an authority altogether, and boldly cuts through at once, rather than stays to unravel, the Gordian knot before him. If people wish to buy land, let them buy it; or, if others have property to sell, by all means let them do so. Never mind about partial powers of sale, imperfect titles, or the hundred-and-one other hindrances obsolete custom or enactment would offer. At worst, these are seldom little more than make-believe bogies that the lawyers talk of to clients, as nurses do to children, merely for the sake of making them do as they wish. But "commercial prudence and sagacity" are terrible enemies to ghosts and fays and imps and goblins of all sorts, and to commercial prudence and sagacity must the buyers and sellers of landed property betake themselves, to defend them from the hobgoblins and imps conjured up by the law's delays and doubts. Let Mr. Hoskyns put the case in his own way:—"Why should not landowners take a leaf out of the ledger of commercial prudence and sagacity, and by a Landed Title Insurance Company free themselves for ever from the tyranny of the shadowy doubts upon their titles that have such fearful power for mischief, yet no reality or substance, except for the benefit of those who raise them?"

Had Mr. Hoskyns but profited by the precedent of the Roman Sibyl, and burned half he had written ere we read the other—had his letter been but half its length, we are quite sure it would have been proportionately more effective. In the suggestion itself there is at least something to think and to talk over. We are by no means prepared to say that it does away with all the difficulties that encompass so difficult a question. But while these are becoming more and more unbearable, the legislature and the lawyers are doing little—and that little very tardily—to encounter them. The time may be come when we must really act for ourselves, and when we shall have to play off commercial prudence and sagacity against legislative indifference and delay. Mr. Hoskyns, like Sir Charles Coldstream in the play, at once turns to a union of interests. "If we want anything here in England," says the used-up baronet, "we get up a Company, and the thing is done!" And Mr. Hoskyns says so too.

TO THE EDITOR OF THE TIMES.

SIR,—Some degree of public interest has attached itself to the approaching election of a secretary to the Royal Agricultural Society of England. It is, however, scarcely known beyond the landowning and farming world that the election falls almost contemporaneously with the commencement of a second twenty years' campaign of this great association of English agriculturists, whose late re-opening at Warwick—almost the central town of the kingdom—offered perhaps the largest exhibition of the kind ever seen in Europe, probably in the world. Their first campaign commenced at Oxford, in 1839, and terminated last year at Chester.

This long course of "Practice with Science" divides itself, somewhat singularly on review, into two equal periods—the former having been received by British husbandry under protection, and the latter under free trade. It is not necessary to draw any comparison. The relative progress during the two periods, and under the two systems, is matter of familiar knowledge to almost all classes of the public.

But I would ask your aid to give expression to a want which the Royal Agricultural Society cannot supply for the soil of England—a want which presses upon it with increasing severity every year, and that now meets the ear directly or inferentially in every conversation among thinking men upon the future of agriculture in this country. It may be stated very briefly. It does not broach complicated questions of steam-ploughing machinery, or elaborate systems of cultivation; it does not plunge into schemes of education for farmers' sons, or of the suitable wages of a class of labourers who never strike. It shapes the one thing wanted in this short phrase—freedom for the land.

It is not too much to say that the actual bearing of this question upon the whole community is not known, not suspected by one man out of ten thousand in it. Hardly a better proof of this could be given than the very terms of the welcome with which the late Solicitor-General, Sir Hugh Cairns's Bill was received by the greater portion of the press. It was chiefly characterized as a boon to the owners of land, which they ought to have long ago used their Parliamentary influence to obtain; and, for the rest, crumbs of comfort were thrown to the lawyers in the prospect of an increased, though altered business.

If the 70,000,000 acres of the United Kingdom existed solely for the benefit of landowners and conveyancers, there would be little left to say; and I would not attempt to say it, for who can help those who will not help themselves? But this, which is so commonly taken as the whole of the question, is its narrowest and least deserving side.

The land of this country, and of every other country in the world, however it may pass from hand to hand as property, is in one sense, and a very obvious sense, the birthright of labour. It is the ultimate source of all production, all wealth, and the origin of all employment and investment. No country, much less such a one as this, can measure what it loses by the denial or stagnation of the commerce in land. It stops or contracts the arteries that supply the whole system of trade, internal and external. It is a "strike," indeed, of the most fundamental and fearful kind, affecting thousands upon thousands who have no means of knowledge, no suspicion whatever of the source of the evil that insidiously reaches their own hearth. If an iron-master be compelled to blow out half his furnaces, or a mill-owner to turn off half his hands, we may lament the cause for his sake; but our sympathies do not begin or end with him. We think of the thousands who are thrown out of employment, and the other thousands whose trade is thus affected directly and indirectly. But what shall be said of a system of established law, or custom having the force of law, which deliberately closes the most natural, most wholesome, and most extensive field of labour that we know, from the labourer, and its produce from the community, by tying up the hands of its proprietors from the employment of the full complement of labour it is capable of employing? The owner himself, like any other capitalist, is perhaps the least sufferer, and the last. He may be idle enough to care but little, or to even prefer half labour, half crops, half investments of capital or time; but the labourer's family are increasing around him meanwhile. Has *he* no vested interest in the employment which the soil should afford?

Now, it happens in this otherwise improved and well-ordered England that the capitalist cannot buy land, and the embarrassed owner cannot sell it, and the improving owner cannot borrow on it without the torture of expenses and delays that every one who knows anything of business knows to be a virtual denial of that free action, and destructive of the motives which lead men to act at all. Who would fatten an ox or sheep, or print a yard of calico, if, before he could sell it, it had to go through a third pair of hands, coming in between the seller and the buyer, that nipped off that little increment of value that men call profit? The carcass price is not the thing men bargain about; it is that addition which skill or labour puts upon it. Confiscate this, and all markets may as well be closed. The gist of the whole matter lies in this. Our system of conveyancing, the obsolete coinage of an age when the investment of capital in land was almost a thing unknown, operates as a deterring influence, paralyzes the motive which should be the mainspring of all traffic in land, compelling its retention in the hands that are unable to make the best use of it, and would willingly part with it, and denying it to those who have capital to invest in it and are able to employ labour in its improvement. This might be of less moment if no one but the buyer and seller were concerned; but let any one say if that be so, who has seen the condition of a landed estate whose owner was too poor to improve it, and that same estate when it has been at length dragged through the fiery ordeal of the conveyancer's office into the hands of a wealthy purchaser. One sight of this is worth a hundred arguments.

There is a kind of toadyism that is fond of coining imaginary pleas for the "ancient owners," the "old aristocracy" of the soil, cheating the ear with the false assumption that a slow and costly transfer of land has a tendency to keep estates in old families. They forget, kind advocates! that the same impediments which shackle a seller embarrass an owner wishing to improve and save his property; that the high price of money to the owners of "green-field security"—though allowed by the best of all—is due to that very complexity and delay which make the sale so troublesome. For, what is mortgage but a sale with power of redemption? Make that power short, simple, certain, and inexpensive, and many an owner of land would be able to hold and improve, partially or entirely, who under the present system is ultimately driven to sell under every disadvantage. An assumption more perniciously erroneous than that dear conveyancing keeps land in old families it would be difficult to conceive. It is more like the joke of an enemy than the error of a friend.

The truth lies grievously the other way. Not only are the owners of land restrained from the power to employ labour by the dearness of capital on their particular class of security, even where the ownership is untrammeled by entail or settlement (a subject on which I should like to address you again), but the continued operation of this impediment begets a kind of generic or class idleness. A landed estate is a business; and for one improvement that will pay 10 per cent. on the outlay 100 will pay five: and, were capital for agricultural enterprise obtainable at the rates of interest that the merchant pays on bills of lading, dock warrants, and Government securities, and which thus govern his investments, it would produce a revolution in the employment of agricultural and estate labour, the building of cottages, and the application of capital to every permanent improvement of the soil. Of all the taxes that can press upon land, that of expensive and protracted transfer is the most extensively injurious. It impoverishes the labourer first, the public who would benefit by his labour second, the capitalist (both large and small) seeking investment third, and, lastly, the landowner himself. For what? Not to aid the public exchequer, but to support an obsolete system of fiction and quackery in the so-called "practice of conveyancers," whose conveying lies in the whole art and ingenuity of obstruction, by virtue of the assumption that every title to land is bad until the ransacking of all the incidents of 60 years' possession has enabled them to prove a negative—that, after all, it is not bad; therefore the conveyance may proceed! Will such a thing be believed hereafter, when the present "system" has been consigned to the limbo of "fines and recoveries," and "outstanding terms," and its supporters are walking hand-in-hand with John Doe and Richard Roe in the plains of Elysium?

But it is only justice to a noble profession to say that its most eminent members have been among the first advocates of a reform of this greatest unreformed abuse in this country.

Conveyancers of the highest standing and experience admit that a really bad title to land is a thing of the most infrequent occurrence; that the risk is, to use the language of insurance, so small, taking one title with another, that it would be a matter of scarcely calcuiable appreciation. Yet by the very same authorities the doubt is often expressed whether (speaking professionally) any effectual remedy will ever come from within.

Every experience is in favour of that belief. Already the practice is obtaining among the wealthier class of buyers, in the case of small purchases, to take a simple conveyance, and be their own insurers of the title. Why should not this hint be acted on? We have insurance-offices in abundance, ready to undertake every species of risk, and not too full of business at present; and here is a risk declared by the best authorities to be, not, like life insurance, a mere question as to the time when an event, certain in itself, will take place, but the infinitesimal risk of a thing which rarely ever happens at all. The Great Eastern is a floating property of tolerable magnitude, yet she can be insured. The poor Royal Charter, so lately lost, will cost each of her insurance-offices the price of a handsome landed estate. Why should not landowners take a leaf out of the ledger of commercial prudence and sagacity, and by a Landed Title Insurance Company free themselves for ever from the tyranny of shadowy doubts upon their titles that have such fearful power for mischief, yet no reality or substance, except for the benefit of those who raise them?

By such an association, composed of landowners themselves, this question might be set at rest, and every transfer of land in the kingdom be reduced to the simplest form a conveyance can assume; not by an elaborate and vexatious investigation of title-deeds, such as that proposed by the bill of last session, but by enabling every vendor and purchaser to make at once the conveyance they have agreed upon, and to insure the title, at a trifling cost, until the lapse of a statutorily-determined period shall have rendered it indefeasible.

I have the honour to be, sir, your obedient servant,

C. Wren Hoskyns.

ON FARM IMPLEMENTS.

It was observed by the late Earl of Leicester, who is better remembered as Mr. Coke of Holkham, that for the purpose of cultivating land scarcely any implements were required beyond the plough, the harrow, and the roll; and that these tools, being duly provided and properly applied, were capable of accomplishing every object of cultivation. To this short and most comprehensive list of farm implements, our long and very extensive practice in farming in the most celebrated turnip-growing counties of Britain, and also on the marine and alluvial clays, makes very little addition, an implement for working the intervals of green-crop drills being the only tool that is thought necessary beyond the very just estimate that was formed by the Earl of Leicester. An explanation will show the grounds on which this opinion is founded.

The Plough

In the most approved swing form, as used in the South of Scotland, is, of all implements yet devised, by far the most generally useful, and can be applied to the greatest number of purposes, and hence its value. It performs every operation of ploughing, in leys, stubbles, and in the fallowing of lands. The drills for green crops are made by the swing plough in a manner superior to the double mould-board plough, of which the two-winged share is not fitted to pierce the stiff subsoils, but is borne upwards, and assisted to rise from the ground by the two mould-boards which float on the bottoms and run as a ledge. The two wings push into a drill the upper dried surface of the land in which moisture is deficient. The narrow-pointed share of the swing plough penetrates the subsoil, and raises fresh soil over the dung, on which moisture the safety of the turnip crop very much depends. This advantage is inestimable. The water-furrowing of wheat lands is done by the swing plough, with one furrow laying the earth to one side, or with two furrows which part to both sides. In wet seasons, on clay lands the work is best done by the common plough, and with one furrow, as with two mould-boards the wet soil adheres and impedes the work. The mould-board may be removed from the swing plough, and the skeleton ploughs the intervals of green-crop drills; two mould-boards can be attached to it, and the drills of potatoes are earthed up with it as by the double mould-board plough. In all these cases of use the swing plough has no equal. The prime cost of the implement is small, the repairs are easy, and to replace it the cost is not large.

For the cultivation of the marine clays of England the turnwrest plough of Kent is indispensable; in that case all other ploughs are useless. These lands, and all soils that require above the power of two horses to cultivate them, are much best used in grass, being relaid with a choice mixture of best perennial grasses, thoroughly cleaned and pulverized by fallowing, and filled with dung and lime, and repeated for several times with lenient cropping between the operations.

In cases of gravelly bottoms, compact gritty earths, dry hard clays, and indurated subsoils of every kind, the plough with two wheels on the point of the beam, and the wheel plough with high gallows, are seen to take and retain a better hold of the ground than the swing plough, owing to the intervention of a body between the draught power and the share, which destroys the uplifting action from the horse's shoulder, and allows the share to go forward undisturbed. A cast-iron share being used on the swing plough would much assist the hold in such cases, as it wears evenly on the under and upper sides of the point, and preserves a straight point; whereas wrought-iron wears round on the under side, and becomes unfit to pierce the subsoil. These cases are not many, and bear a diminished ratio to the range of the swing plough, which extends all over turnip soils and most of the wheat lands in Britain. The one process of ploughing one furrow on lea or stubble, done by wheel ploughs, is not any comparison with the number of purposes acted by the swing plough, for which the wheels are incumbrances and altogether useless. On the ground of general utility the superiority of the swing plough is established.

GRUBBERS,

Of any kind, do not perform operations that are not better done by the plough; and if the cost is thought to be lessened in any case, the result will be proportionally decreased. The tools are costly and complicated, and execute only one operation, of which the value is not equal to the interest and repayment of the capital expended. The implement stands idle in the shed, and is employed in one use of a certain season.

Coleman's Grubber

Performs a good purpose in skimming the lands of bean and pea-stubbles to be sown with wheat. The weeds are cut and collected, and the surface-ground is pulverized. The cases of use are not many; but the implement is cheap and simple. J. D.

THE SUPPLY OF MILK—NATURAL AND ARTIFICIAL.

The most important of all the dairy productions is certainly milk, whether considered in its pure form as a beverage for domestic use, or in its prepared products, of cream, butter, and cheese. The aggregate consumption of milk, in the United Kingdom, excluding the other dairy products obtained from it, has been roundly estimated at something like 1,300 million gallons per annum, which would require, to supply it, half-a-million milch cows. The demand for milk in London, Liverpool, and other large towns is very great; and, if we could arrive with any accuracy at the extent of the metropolitan consumption, it would be a curious and instructive investigation. Taking the resident and floating population of London at 3,000,000, and assuming that they use a quarter of a pint each a day, this would require a weekly supply of 656,250 gallons, or 17,062,500 barn gallons a year.

The great proportion of the London supply now comes up by railway from the country from considerable distances, and the country milk trade is daily increasing. Scarcely one-fifth of the London supply is furnished by the cows kept in the metropolitan lay-stalls, and no doubt ere long the whole will come from the suburban districts and the home-counties. According to the *London Directory* there are about 2,900 dairymen for the supply of the metropolis; what number of itinerent milk-vendors there may be it would be difficult to say. There are also four professed vendors of asses' milk.

In this country we depend entirely upon cows' milk, if we except an occasional resort to asses' milk for invalids. But in other countries the milk of the goat, sheep, mare, camel, and rein-deer are utilized. Sheep's milk is a common beverage in Toorkistan, where the sheep are milked regularly three times a day. It is also used in Sweden and Denmark. Goats' milk is used in Switzerland, rein-deer's milk in Lapland. The milk of the camel is a very favourite drink in all countries where the animal is used. The quantity given by the camel, without green food, does not usually exceed a quart; but the Bactrian, which enjoys a more succulent diet, yields twice that quantity. Some of the pastoral tribes possessing large herds live almost wholly upon camels' milk during a great part of the year, and it is frequently given to favourite horses, which are extremely fond of it.

From 80 to 90 per cent. of cows' milk consists of water. This quantity may be increased by special feeding for this purpose. Some sellers of milk in the neighbourhood of large cities, who are too conscientious to add water to their milk, but who still desire to dilute it, contrive to effect their purpose by feeding their cows on juicy succulent food, containing much water. Such watered milk they are able to sell with a safe conscience, though it may be doubted if the true morality of the case is much better than if the pump or water-can had been called directly into action. The large breeds of cows, which are remarkable for giving very great quantities of poor watery milk, are kept in many parts of the country around London for supplying the metropolis with milk. The seasons have their effect upon milk. The milk in spring is supposed to be the best for drinking; hence it would be the best for calves. In summer it is best suited for cheese; and in autumn, the butter keeping, it is better than that of summer. The cows less frequently milked give richer milk, and consequently more butter. The morning's milk is richer than the evening's. The last drawn milk of each milking, at all times and seasons, is richer than the first drawn, which is the poorest. Both the quality and quantity of milk will depend on many circumstances. The breed of cows is important. Small breeds give less milk, but it is of a rich quality. The kind of food also exercises no inconsiderable influence. Fed on grass and brewers' grains, cows give great quantities of milk; but the grains are an unnatural food, and have an injurious influence on the health of the cows and the quality of the milk.

Various plans for the production of artificial milk, solidified milk, &c., have been brought before the public from time to time, a few of which may be alluded to. The addition of sugar and evaporation by heat appear to be the plans pursued by most. Thus the process followed by M. Delignac, and which has been pronounced perfect by the Paris Academy of Science, is to mix with good milk a certain quantity of sugar, and then subject it to evaporation at a temperature below 100 deg. centigrade, by continued agitation: when reduced to two-tenths, the thickened liquid is put into a tin box hermetically sealed, and subjected to further heat.

In the United States several plans are used for concentrating and solidifying milk. Mr. Gail Borden, of Connecticut, prepares a concentrated milk by boiling in vacuo, at a temperature of less than 140 deg. Fahr., and thus removing 75 or 80 per cent. of water. It is intended for general use by diluting with water, and keeps a little longer than common milk. But it can be preserved for months by hermetically sealing it in cans, or combining with it a due proportion of pulverized sugar. Another maker, Mr. Blachford, in the State of New York, makes a solidified milk by adding one-fourth part in weight of white sugar, and a teaspoonful of soda, evaporating the milk by water heated with steam. It is formed into tablets covered with tinfoil. Similar solidified cakes of milk are sold occasionally in this country. Mr. Moore, of Sun-street, vends a concentrated preserved milk in tin cases; one spoonful of which, added to six of boiling water, yields a very good milk.

Mr. Septimus Piesse furnishes the following receipt for the manufacture of a purely artificial milk or lactine: Honey four ounces, powdered gum arabic half an ounce, three yolks of eggs, and six ounces of salad oil, well rubbed up together. One ounce of this, dissolved in half a pint of water, produces that amount of artificial milk. A more useful plan for the emigrant or voyager is to place bottles of milk, well corked, in a pan of cold water, and gradually raise the temperature to the boiling point. Then remove the pan from the fire, and let the bottles cool in the water. The milk will remain good for six months. In Italy they carry the process further, in the production of a dry substance called "Lactenia." Instead of putting the milk into bottles they evaporate it to dryness, under constant stirring. A dry mass is thus obtained, which, when dissolved in water, is said to possess all the properties of the best milk.

Milk has been made to perform other offices besides the production of butter and cheese, custards and puddings, and colouring of dietetic drinks. It has taken the place of albumen in the textile factories, and has been found useful in the hands of the calico printer. In pigment printing the colours have to be laid on the face of the fabric in an insoluble condition, so as to give a full, brilliant appearance. Lactarin, obtained from butter-milk, is more economical than the expensive egg albumen. When the price of olive and other oils were high, the woollen manufacturers and spinners mixed milk with the oil. It did not, however, amalgamate well with the oil; and an inferior texture of yarn and cloth was said to be the result. Besides, the milk undergoes chemical changes, which leave a sour smell about the fabrics, that make them less saleable; and the acid of the milk corrodes the combs and other machinery used in the processes of manufacturing the wool into yarn and cloth.

The Kalmucks, and most of the shepherd tribes of Central Asia, prepare from the milk of their cattle two kinds of beverage; one is called "koumis," and is sour milk which has undergone a certain degree of vinous fermentation. It corresponds with the "pinna" of the Laplanders, which is made of rein-deer milk. The other beverage is an intoxicating, agreeable, flavoured liquid, obtained from koumis by distillation. Good koumis cannot be obtained from every kind of milk; that made with the milk of cows or sheep is bad. The milk of camels, and of mares particularly, yields twice as much. The koumis is prepared by mixing six parts of warm milk with one of warm water, and some old koumis as a ferment, then fermenting with frequent agitation. The fermenting quality of milk depends on the saccharine matter which is held in solution by the whey, in the proportion of about 5 per cent. Sugar of milk is obtained after cheese is made, by evaporating the whey. When dissolved in four times its weight of water, clarified, and evaporated to a syrup, white crystals are obtained, called lactic acid. Milk boiled with a little sugar keeps a considerable time. In Switzerland milk sugar is made somewhat largely, and used for food; and it is also used medicinally in this country.

Thus much for the milk of our breakfast tables. This brief inquiry shows us under how many various aspects even one product may be viewed by different persons and in different countries.

SIGNS OF RAIN.

TWENTY-NINE REASONS FOR NOT GOING OUT TO A PIC NIC.

The hollow winds begin to blow,
The clouds look black, the grass is low,
The soot falls down, the spaniels sleep,
The spiders from their cobwebs peep.
Last night the sun went pale to bed,
The moon in halos hid her head;
The boding shepherd heaves a sigh,
For, see, a rainbow spans the sky.
The walls are damp, the ditches swell,
Closed is the pink-eyed pimpernell.
Hark! how the chairs and tables crack,
Old Betty's joints are on the rack;
Loud quack the ducks, the peacocks cry,
The distant hills are looking nigh;
How restless are the snorting swine,
The busy flies disturb the kine;
Low o'er the grass the swallow wings,
The cricket, too, how sharp he sings;
Puss on the earth, with velvet paws,
Sits, wiping o'er her whiskered jaws,
Through the clear stream the fishes rise,
And nimbly catch the incautious flies;
The glow-worms, numerous and bright,
Illumed the dewy dell last night;
At dusk the squalid toad was seen,
Hopping and crawling o'er the green;
The whirling wind the dust obeys,
And in the rapid eddy plays;
The frog has changed his yellow vest,
And in a russet coat is dressed.
Though June, the air is cold and still;
The mellow blackbird's voice is shrill;
My dog, so altered in his taste,
Quits mutton-bones on grass to feast.
And see yon rooks, how odd the flight,
They imitate the gliding kite,
And seem precipitate to fall,
As if they felt the piercing ball.
'Twill surely rain, I see with sorrow,
Our jaunt must be put off to-morrow.

RETURN OF THE SALES OF ESTATES IN LONDON, AT THE AUCTION MART AND GARRAWAY'S, WITH THE SALES IN THE LANDED-ESTATES COURT, DUBLIN, FOR TWO YEARS, ENDING SEPTEMBER, 1859.

Months.	London Sales, From Oct., 1857, to Sept., 1858, (inclusive).			London Sales, From Oct., 1858, to Sept., 1859, (inclusive).			Dublin Sales.	
							From Oct., '57, to Sept. 1858.	From Oct., '58, to Sept. 1859.
	Sold.	Bought in.	Total.	Sold.	Bought in.	Total.	Sold.	Sold.
	£	£	£	£	£	£	£	£
October	90,924	159,935	250,859	119,750	164,000	283,750	48,310	36,148
November	75,793	123,780	199,573	220,312	255,579	475,891	400.525	710,450
December	63,941	118,680	182,621	*527,578	53,990	581,568	340,160	188,315
January	13,465	58,369	71,834	73,627	132,105	205,732	81,476	20,400
February	101,594	48,857	150,451	115,807	117,870	233,677	68,870	96,070
March	107,550	181,038	288,588	235,048	159,470	394,518	85,580	1,835
April	210,179	280,448	490,627	135,644	144,582	280,226	56,610	18,435
May	395,695	459.455	855,150	358,927	414 565	773,492	377,832	128,927
June	605,382	909,724	1,515,106	465,328	565,798	1,031,126	371,523	212,948
July	607,730	1,319,205	1,926,935	547,898	514,780	1,062,678	96,845	68,043
August	396,919	938,132	1,335,051	306,418	702,464	1,008,882	—	—
September	134,511	368,835	503,346	125,375	163,730	289,105	—	—
	2,803,683	4,966,458	7,770,141	3,231,712	3,388,933	6,620,645	1,927,731	1,481,571

* In the month of December, 1858, two large sales occurred at the Mart of estates in Northumberland, amounting together to £423,000. This accounts for so large an amount in December, 1858, compared with December, 1857.

In the above table we give the amount realized by the sale of land and houses at the auction mart and Garraway's during the last two years; at the same time we show the amount bought in, as well as the total amount put up by auction. We consider these statistics interesting and of some importance. Last year the total amount of estates offered for sale exceeded the present year by about £1,150,000, but the sales this year have, in proportion, exceeded those of last year, viz , £3,231,712 was sold out of £6,620,645, whereas last season the sales amounted to £2,803,683 out of £7,770,141. This year nearly half the estates have found purchasers, while only about one-third of the property offered for sale last season was really sold. Taking the average of the two years, it would appear that estates to the value of seven millions are annually put up for sale by auction in London alone, nearly half of which is disposed of; indeed, it may be taken for granted that half is sold, if we bear in mind that in many instances when an estate has been bought in at the public auction, it is subsequently sold by private contract, the public competition having tested its value.

With respect to the column of estates bought in, allowance should be made for property offered for sale twice in the same season. A repetition of this kind is not likely to occur to sales; the amount can only be entered once, but some estates which we could name, by being bought in again and again, tend to unduly augment the bought-in column.

Our thanks are due to the Secretary of the Estate Exchange for the above return of the London sales, and we much regret that such a valuable society has not been in existence longer, so that instead of giving only two years of sales we might have been enabled to lay before our readers the sales for the last twenty years. We hope the admirable system adopted at the Estate Exchange will be persevered in; a record of the public sales of estates must be of great importance and value to those who are interested in real property.

With respect to the country sales, we should be happy if we had materials for showing the amount, but we have no means whatever of so doing. True, a long list of country sales appear in each publication of our *Gazette*, but it is only a portion of the sales that actually take place. We consider that, taking the business all over the country, we shall be safe in assuming that the amount of sales equals that which is sold in London; if this is the case, we find that about six millions sterling of land and houses annually change hands in England and Wales.

Now for a word or two respecting the sale of estates in Ireland. The table shows that the business of the Landed Estates Court is declining, though perhaps it may be said with some truth that especial causes existed to account for the paucity of sales this year; but still, it is improbable the Court will ever again be burthened with such an amount of sales as occurred a few years back. The average annual sales of the last two years have been £1,704,651, whereas in 1852 the sales amounted to £2,833,660, and in 1853 to £2,818,861. The sales for last year amounted to about the same as in 1850, the first year of the proceedings of the Encumbered Estates Court. The Court sell by private contract: but we are not touching on what the judges accomplish in this respect, or what is sold in London by private treaty; we are confining our remarks to the public sales alone. In speaking of the sale of estates in the Landed Estates Court, Dublin, and comparing such with what is effected at the Auction Mart and Garraway's, we must bear in mind that the sales in the Court in Dublin represent the *whole of the estate sales* in Ireland: there is literally nothing done outside the Court. We certainly know of one estate shortly to be sold by a Dublin auctioneer; but this is quite an unusual event: we do not suppose that six such sales occur in a year. From these remarks it is apparent that the London sales of about three millions annually, with the country sales throughout England assumed as another three millions, total six millions value of land and houses exchange hands annually in England, to about a million and a half in Ireland, the former being in a great measure *free sales*, and the latter *compulsory*. The area of England and Wales is not quite double that of Ireland; and yet we have four times the amount of sales. It would appear that the very large sale-years in Dublin, as reported in the *Irish Land Schedule*, did not exceed the amount of property annually sold in London; but the former appeared of such magnitude from the fact that the sales in London were not reported.

We confess we have only opened this subject. We should be glad to proceed further, and be enabled to compare the number of purchasers in this country with those in Ireland. This is a wide field for inquiry; but we must leave the subject to other and abler hands, being satisfied to have given these few remarks on the estate-sales of England and Ireland.—Estates Gazette.

REAPING MACHINES IN SCOTLAND.

In the quarterly agricultural reports from the several counties in Scotland, published by our contemporary, the *North British Agriculturist*, the following general remarks on the use of the reaping machine are given:—

The report for Aberdeenshire states:—"Some reaping machines were used by a few of the most spirited farmers throughout the county, but not to the extent that the advantages of this valuable implement seem to warrant, seeing that so much important labour could be saved by its general adoption in harvesting the crops. If the surface is smooth, the reaper makes as good work on steep as on level land, the only drawback being that the draught is too heavy for a pair of horses; but if the draught of the implement could be reduced, and its working efficiency kept up, we would then have more hope of seeing it used on our high-lying and steep-surfaced land."

Suggestions are here given to machine-makers in reference to reducing the draught of the implement, so as to render reaping machines suitable for cutting crops on steep lands; the writer stating that where the surface is smooth the work done by reaping machines is as good as that on level lands There has been hitherto a very general impression that machines cannot be used on steep lands even were the draught of the machines reduced so as to render them adapted for the strength of two horses.

The report for Berwickshire states:—"Reaping machines are getting progressively common in this county from year to year, and one or more of these very useful implements are possessed now by the generality of farmers of any extent. Now that the working is being better understood, they are more thought of. They are undoubtedly a great saving of expense, and, in case of scarcity of hands, of incalculable advantage in cutting down grain that might otherwise be shaken by the wind."

The number of machines which were in Berwickshire this season was only equalled by the number in Haddingtonshire. The progress made in introducing machines in Berwickshire has been very uniform. The machine which is now in highest favour is Burgess & Key's. The reporter has used during the last two seasons at least three machines—one Burgess & Key's, and two M'Cormick's Bell.

The reporter for Edinburghshire writes somewhat despondingly of reaping machines, being the exception to the generally highly favourable accounts given of the working of these, and of the sanguine anticipations of their future position as one of the ordinary implements of the farm. As there are always two sides of a question, it is satisfactory to hear both:—"Harvest began in the low district by the middle of August, and mostly all was cut down within the month—scythemen doing much of the work. Shearers were plentiful, the wages being from 9s. to 10s. per week, with food. Reaping machines were also used; in most cases, however, Bell's was never taken out, those mostly used being the lighter descriptions, such as Dray's Hussey, or Gardner's. The improvement of reaping machines seems to be now in abeyance, for the cutting apparatus, which was early perfected, has been little improved; and, save with Burgess & Key's M'Cormick, nothing has been done effectively with gathering appliances. The weight and cumbrousness of Burgess & Key's gathering apparatus operates sadly against its general usefulness; and although it undoubtedly stands first at the present time as the most complete machine, it is not to be believed that all further improvements are impossible, and that a better machine than any of the existing ones cannot be constructed. It was often wished that short stiffer-strawed crops could be grown for the purpose of their being reaped with machines. This season these were in abundance, and the heavy machines were at a discount; but what guarantee have we that next year a tangled twisted crop may not be presented to us to begin to? and without superior machines to those at present existing, where are we? If we once allow our present bands of reapers to drop off—which we will soon do if we do not encourage them—how are our crops then to be cut? It is only, therefore, by aiming at having such machines as shall be available for any crop that our purpose with them is to be effectually served. Give us a Gardner's or a Dray's Hussey, which will cut effectually a laid twisted crop, then progress will be made. But to give prizes to such machines year after year without progress in this respect, is just to lay money badly out; these machines making no pretensions to self-laying, it being the man that does so. It is only in cutting all sorts of crops they can be improved with advantage."

The majority of those possessing reaping machines will differ in opinion with the writer of the report as to the probability of non-delivery machines being sufficient to meet the views of the purchasers of reapers. Non-delivery of the cut grain is a serious objection to all machines produced on the principle of Hussey's. The remarks in reference to the awarding of prizes year after year, without any progress, do not apply to the prize reaper of Burgess & Key's M'Cormick. This last season the machine presented an important improvement, which facilitates turning. Besides improved workmanship in the machines sent out, we believe a better description of material is now used. We observe from the reports of the patent office, that Mr. George Bell, Inchmichael, has lately patented improvements in the machine. The nature of the alterations is not stated, but it may be expected they are in advance of previous alterations made on the original machine. The report of Mr. Wilson, of Wester Cowden, experienced in the use of Bell's reaper, given in last week's impression, shows in a favourable light what can be effected by persevering with reaping machines. The farm of Wester Cowden is in the county of Edinburgh, where the report is somewhat unfavourable as to machine reaping.

The report for the county of Forfar contains a favourable notice of the machines sent out this last season by Burgess & Key. But the report differs from that of the others, in stating that the crops were not favourable for cutting with machines. "The past harvest has not been favourable for reaping by machinery, owing, in many cases, to the shortness of straw in oats and barley, and the necessity of getting all the fodder possible. In cutting wheat they have invariably made excellent work, though to secure this it has generally been found necessary to cut only in one direction. The machines sent out by Burgess & Key this year are superior to those of last season, both in construction and workmanship, and very trifling alterations have made a considerable improvement in them. We believe other makers are advancing in the same way. In the course of another year or two we may fairly expect to have reaping machinery brought to as great perfection as can be desired." The reporter is very sanguine of the speedy perfection of reaping machines.

The report for Haddingtonshire thus briefly alludes to reaping machines: "The harvest was not only expeditiously but cheaply finished—a great extent of grain being cut by machinery, and on several farms fully three-fourths of the crop." The reporter, we believe, used three machines, cutting fully three-fourths of the entire crop. The area so cut would extend to upwards of 300 acres, consisting of wheat, barley, and oats. In the county reaping machines are coming yearly into greater request, and upwards of 100 machines would be at work in the county last harvest. At first Bell's machine, manufactured by Crosskill, was in most favour, but latterly other machines have come into request. Defective workmanship, and inferior materials, in the machines first sent out by Crosskill's firm, acted most injuriously against the progress of machine reaping in this county.

The report for Inverness-shire contains no allusion to reaping machines, but refers to the scarcity of field labour compelling the farmer to adopt the scythe, which "was almost universally used for cutting down the grain." By next season more than one machine will be at work in this county.

The report for Linlithgowshire states, that "the more general use of the scythe and reaping machine had the effect of moderating shearers' wages, which ran from 1s. 4d. to 1s. 6d. a-day with victuals, a rate considerably under that of former years."

The report for Perthshire contains two references to reaping machines. The following is the fullest: "We have stated that a number of reapers were this year at work, and gave satisfaction—this is a pleasing feature in connection with farming. We particularly beg to allude to Burgess & Key's reaper, which we have witnessed, where the work was everything that could be desired, and the saving of expense greater than we could have anticipated. We wish all reaping machines great increase over the county, and hope those who still require them will be provided from some respectable makers before another harvest." Should the advice be acted on for each farmer in the county to procure a reaper, Perthshire will absorb nearly all the machines which can be manufactured in England and Scotland before the commencement of the harvest of 1860. Doubtless there are few districts in which reaping machines are more required than in this extensive corn-producing county. The practice complained of by the reporter, of cutting nearly the whole of the grain on the farms previous to stacking a portion, shows the existing necessity for machines to cut the crop, as it is not to be inferred that the Perthshire farmers are so "penny-wise and pound-foolish" as to expose their crops in the stook one day longer than is necessary to secure their keeping in the stack, for the paltry saving of keeping the ploughmen cutting and binding corn crops.

In other counties reaping machines have been in operation, although not referred to in the reports. The general interest now taken in reaping machines will tend to their improvement, while it will induce farmers to purchase with greater freedom, knowing that reaping by machinery is perfectly practicable. We are of opinion that agricultural associations have hitherto shown a culpable apathy in reference to the introduction of improved reaping machines. In America, it was—and is still—quite a common practice for an agricultural club to purchase machines for trial. If the machines prove valuable, the fact is directly ascertained and taken advantage of; if the machinery prove not valuable, the loss is sustained by the club, and the machines are not used. This system might be advantageously adopted, both as to mowing and reaping machines in the United Kingdom.

CAMBRIDGESHIRE FARMS AND FARMING AT PRESENT CONTRASTED WITH THEIR POSITION THIRTY YEARS BACK.—At the Western Cambridgeshire Meeting, the Earl of Hardwicke said: There was no doubt but the country in which they lived had, in his own memory, rapidly advanced in the science of agriculture. He remembered the time when, in their own vicinity, the country was so open, that they could gallop from Royston to Cambridge without meeting a fence, and when land, at the time to which he was alluding, let for one-fourth the value that was now being realized. He had some land at Orwell, which, 30 years ago, he let for 9s. an acre, and that same land was now being let for 40s. an acre. This showed the advance of agriculture in their own county, and was, indeed, indicative of the general progress of agriculture throughout the country. The Press might give all the credit to free trade, but he should attribute it to protection. At the last time he met them, at that anniversary, he told them he had abandoned protection; he repeated it. It was almost idle to allude to it, for they would never see it again; and he was now as good a free trader, and, perhaps, a better one, than any of them. Free trade and an increase of population was working together. There was a time when farmers would only take a choice bit of land; but in the struggle in the world now going on, if a farmer could not have his favourite piece of land, he must take the next best piece, and then the next, and the next, and so on, till, by competition, the farmer was at last obliged to take what he could get; and to this might be attributed, in a great measure, the prosperity of agriculture. Cambridgeshire, as an agricultural district, was one of the most profitable in England. Cambridgeshire stood fifth or sixth, in point of value, in the aggregate in all England. Look at the fens of Cambridgeshire; contemplate what had been done there. In harvest time, it was one vast sea of corn, as level as the ocean itself. Look at the thousands and hundreds of thousands of acres that had been wrested from the waters by the capital, the enterprise, the skill, and indomitable perseverance of the men of Cambridgeshire, and all by pumping by the steam-engine. They were an advancing and an improving country, and Cambridgeshire was not behind in the great science of agriculture.

THE PRODUCTS OF AUSTRALIA.

While English farmers and stockbreeders are resting from their labours, and preparing for their usual Christmas gatherings, their brethren on the other side of the globe are rather differently occupied. Not that they are altogether over-looking competitive shows; for announcements of annual exhibitions and meetings of agricultural societies are pretty thickly scattered over the colonial journals. In Victoria silver and gold medals have just been pretty extensively distributed for bulls and working bullocks, grazing, dairy, and fat stock. Draught horses and blood horses, colonial or imported, merinoes and Leicesters and Cotswolds, pigs, dairy produce, and agricultural implements and machinery, have all come in for competition and reward. The colony had sustained a loss in one of its finest specimens of imported stock, in the death of Master Butterfly. This is a heavy loss to his owner, Mr. G. J. Ware. Colonel Towneley was paid 1,200 guineas for the animal, and with freight, insurance, and other expenses, we doubt if he cost, landed on the Melbourne wharf, one penny less than £1,500. As Master Butterfly had been some two years in the colony, no doubt he has left among the stock of the Western district many inheritors of his fine temper, symmetry, and general good qualities.

An account is published of the number of live stock imported into Victoria across the Murray, from which it appears that during the quarter ending June, 27,306 cattle, 96,815 sheep, and 1,104 horses had been registered as imports at Echuca, Wangaratta, Mulwalla, Belvoir, Swan Hill, Harrow, and Casterton. The five first-mentioned places are on the New South Wales frontiers, and the two last on the borders of South Australia. Echuca is the great mart for cattle, Swan Hill for sheep, and Belvoir for horses.

But the colonists do not seem half active and industrious enough in the extension of grain culture to supply the wants of the increasing population, and prices of wheat and flour have gone up amazingly. The subject of the last wheat crops and the means of supplying the deficiency seem to be occupying a considerable degree of attention in Victoria and Tasmania; and this is not to be wondered at when flour is selling at £40 per ton in the gold fields, and at £34 per ton in the towns. Ten years ago it could be bought readily at one-fourth that price. Another food staple which used to rule high—potatoes—is, however, fortunately, very cheap; £3 to £3 10s. per ton, or just half the price of 1848. At Adelaide flour had been up to £33 per ton, and wheat to 15s. per bushel.

A Mr. D. Simpson, of Hobart Town, who appears to be an extensive corn-dealer, publishes some statistics of the corn-crops and consumption of the different colonies, the accuracy of which is, however, questioned in some of the journals. He estimates the quantity of wheat produced in the years 1858 and 1859 as follows:

SOUTH AUSTRALIA.	Bushels.
187,000 acres, averaging 9 bushels per acre	1,683,000
Required for seed	300,000
Total	1,383,000
Population 110,000, at 5lb. per head per week for 44 weeks	550,000
Surplus for export	833,000
VICTORIA.	
70,000 acres, averaging 15 bushels per acre	1,050,000
Less seed	180,000
For home consumption, total surplus	870,000
Population 520,000, at 6lb. per head per week for 44 weeks	3,088,182
TASMANIA.	
50,000 acres, averaging 15 bushels per acre	750,000
Less seed	100,000
Total	650,000
Population 84,000, at 5lb. per head per week for 44 weeks	448,636
Surplus	201,364
South Australia, surplus	833,000
Victoria, do.	870,000
Tasmania, do.	201,364
Available for Victoria	1,904,364
Consumption of Victoria	3,088,182
Available for do.	1,904,364
Deficiency for Victoria	1,183,818
Probable deficiency of New South Wales	400,000
Quantity needed	1,583,818

These estimates are based, we presume, upon the demand of the population until the new crop is harvested; but they are exceedingly vague, and the computer, moreover, deducts 25 per cent. from the growers' estimates of production per acre. His reason for limiting the year to 44 weeks is, that though the stocks were unusually small at the commencement, yet there was at least four weeks' supply on hand. In case of scarcity they could also reckon on commencing four weeks sooner than under ordinary circumstances, which makes up the eight deficient weeks. Mr. Simpson considers there is a real deficiency of 35,000 tons, which must be met by foreign imports, chiefly from Chili, as but little is likely to be sent from this country or the United States.

The cultivation of the sorghum saccharatum does not appear to have succeeded in Victoria any better this year than last. After reaching to a good height, and promising to be very successful, the plants suffered from the late frost. The soil seems well adapted to the plant, as it grew remarkably well, and but for the unusually late appearance of frost it would probably mature satisfactorily.

Notwithstanding that the supply of potatoes had been considerably in excess of the demand, and in consequence of their low market value they had been much used for cattle-food, an equal quantity seems to have been planted. Many farmers think they will pay better next year. Some cultivators are about growing the large white carrot for cattle-food.

The Government of Victoria had proposed to the agricultural societies of the colony to take upon themselves the responsibility of compiling the statistical returns of cultivated lands and crops for the current year. We also notice that a steam-plough had been ordered from England by the Council of Agriculture of Melbourne, to be used on the model-farm for subsoiling and trenching: so that the colonists are determined to keep pace with agricultural improvements at home. This is as it should be. They have money enough, and energy enough, if they will but find the time and thought to improve and promote the best interests of the colony, by the extension of agriculture, and improved mode of tillage and cultivation.

The colonists do not seem to neglect the sports of the field either; for, besides their Derbys and Legers and Oaks, they have their hounds, and are not always obliged to course dingoes, or native dogs. Mr. Thomas Chirnside informs the Nimrods of the western district of Victoria, "and those parties who purpose having a day with the Melbourne and Geelong hounds, at the Werribee, that on Saturday, 1st Sept., a deer will be uncarted about two miles north of the Werribee Railway Station, in the direction of Mount Cotterill, at half-past nine o'clock. A second deer will be in reserve, ready at the railway station (in case the first does not give sport), or a native dog. On the following Saturday, Sept. 3rd, a deer and native dog will also be let go, at or near the Little River Railway Station, towards Station Peak. Should the weather keep cool, a deer will be let go at Salt Water River, near the race-course, sometime between the 5th and 12th October. There being about as little sport in this colony as in any country in the world, I propose giving a buck every two or three weeks during winter. And as I am getting red deer from England, I will be able to give a stag hunt, which affords better sport than fallow deer."

These features are worthy of record, although occurring in a distant quarter, because there are numbers directly and indirectly interested in the progress of our southern colonies, and we can but echo heartily the words of their own motto—"Advance, Australia!"

THE WHEAT AND FLOUR TRADE OF SOUTH AUSTRALIA.

In noticing recently some Tasmanian calculations respecting the stocks of wheat and flour available for use in the Australian colonies between the present period and the ingathering of the next harvest, we promised to look into the state of affairs in that respect in South Australia, in order to ascertain how far we are prepared to feed ourselves and our neighbours during the ensuing three or four months. That promise we now proceed to redeem. In calculating in advance the probable requirements of the year, we are in the habit of setting aside a fixed quantity per head of the population as the measure of our home consumption. But this theoretical calculation may often be falsified in practice; and, indeed, is very likely to be falsified under such circumstances as prevail at the present moment. With the labouring classes earning considerably less money in wages than the average of the last preceding half-dozen years, with bread at an excessively high price, and with potatoes plentiful and cheap, it is inevitable that the estimated ratio of consumption will not be reached. It may thus become possible to export a much larger quantity than was originally set aside as available for exportation, without in the least degree vitiating the original calculations. The quantity abstracted from the produce of one harvest to sow for the next is less liable to fluctuation on account of unforseen causes. The probability is, however, that the high price which has ruled during the last four months would stimulate farmers to cultivate a larger breadth of land than they might otherwise have intended to sow with wheat. These preliminary explanations are requisite to a correct understanding of the calculations which follow.

The two great facts to be ascertained are, 1st, the quantity produced at last harvest, and, 2nd, the quantity disposed of by exportation and otherwise up to the present time. With respect to the first we have no other means of information than the official returns, as collected by the parties employed by the Government for that purpose. According to those returns the entire produce of our last wheat harvest was 2,109,544 bushels, which is equivalent to 44,884 tons of flour. But circumstances are transpiring which lead to the conclusion that this aggregate is somewhat below the actual yield. The cause of the error is the circumstance which we pointed out some months ago as the only possible source of mistake in the calculations as finally revised, viz., the inaccuracy of the data supplied by farmers themselves in relation to their own returns. On this point we will only extract a few remarks from speeches recently delivered at an agricultural dinner at Normanville. They are as follow:

> "Mr. James Smith said there was an important point he wished to call attention to, which was that the yield of the district of Yankalilla was far greater than was stated in the Government returns. He had put his yield at 20 bushels, thinking he would rather be under the mark than over it; but on clearing up he had found his average was 23 bushels.
>
> "The Chairman (Mr. Herbert) stated that while the Government statistics showed 77,000 bushels as the amount raised in the district, there had been 130,000 sent out of it. Not all of that, but nearly all, had been raised in the district. The average of the whole district had been somewhere about 28 bushels per acre. Commercial transactions showed that result.
>
> "Mr. Willson confirmed that opinion. He was convinced that when the quantity which had come into the district for exportation from Inman Valley, Myponga, and Encounter Bay was fully allowed for, there would be shown, as the direct produce of the district, some 30,000 or 40,000 bushels more than the returns gave.
>
> "Mr. Gardiner corroborated the statement."

We can only say that farmers are strangely blind to their own interests in thus intentionally understating the yield of their farms. They may be certain that the consequence will be that merchants and the public will go to the opposite extreme, and add to their acknowledged yield a per-centage greater than the facts will warrant. As the result, they will not get so good prices for their produce as if the state of the case were accurately known. We may remind our readers that the district referred to by the speakers from whom we have quoted, appeared from the returns to be the most fertile portion of the colony. But even that high return now appears to have been understated. It must be remembered, also, that similar statements have not been publicly made anywhere else, so that it is not impossible that the under-estimate may have been chiefly confined to that district. For the present, however, we can only conjecture how that may be. The yield of Yankalilla is now said to have been 40 per cent. greater than was stated by the farmers to the official collectors. We will add 10 per cent. only to the total yield of the colony, as returned, and assume the produce of last harvest to have been 50,000 tons of flour.

We now come to the disposal of our produce. In the first place we collect the weekly exports from Port Adelaide, as published in the *Government Gazette*. They are as follow :—

WHEAT.

Week ending		Quarters.	Price per Bushel.		Gross Value.	
			s.	d.	£	s.
January	1........	819	6	0	1,965	12
	8........	837	6	0	2,008	16
	15........	862	6	3	2,155	0
	22........	1,242	6	3	3,730	0
	29........	2,173	6	6	5,649	6
February	5........	2,183	6	9	5,894	2
	12........	1,693	6	9	4,571	2
	19	2,383	6	6	6,195	16
	26........	3,575	6	4	9,056	13
March	5........	924	6	6	2,402	8
	12........	705	6	8	1,080	0
	19........	1,940	6	8	5,173	7
	26........	520	7	8	1,594	13
First Quarter		19,856			52,276	15
April	2........	2,791	7	8	8,559	1
	9........	1,392	8	0	4,454	8
	16........	—	7	10	—	
	23........	69	7	10	216	4
	30........	169	8	2	552	2
May	7........	1,184	8	2	3,867	14
	14........	105	10	0	420	0
	21........	360	10	0	1,440	0
	28........	592	9	9	2,308	16
June	4........	—	9	6	—	
	11........	555	9	6	2,109	0
	18........	—	10	0	—	
	25........	—	10	0	—	
Second Quarter		7,217			23,927	5
July	2........	1,238	9	9	4,828	4
	9........	310	11	4	1,418	5
	16........	1	10	6	4	4
	23........	—	11	0	—	
	30........	1,292½	12	3	6,333	5
August	6........	125	12	0	598	10
	13........	—	12	4	—	
	20........	—	12	6	—	
	27........	—	13	0	—	
September	3........	634	16	6	3,677	4
Ten weeks		3,600½			16,859	12

FLOUR.

Week ending.		Tons.	Price per ton.		Gross value.	
			£	s.	£	s.
January	1........	184	15	10	2,852	0
	8........	229½	15	0	3,442	10
	15........	272½	15	0	4,087	10
	22........	464	15	0	6,980	0
	29........	375½	15	0	5,632	10
February	5........	444½	15	10	6,889	15
	12........	496½	15	15	7,819	17
	19........	604	15	13	9,513	0
	26........	553	15	15	8,709	15
March	5........	363½	16	0	5,816	0
	12........	411½	16	0	6,584	0
	19........	539	16	10	8,893	10
	26........	156	10	10	2,886	0
First Quarter......		5,093½	—		80,106	7
April	2........	251	18	10	4,613	10
	9........	308	18	10	6,253	11
	16........	155	18	10	2,867	10
	23........	169	18	10	3,089	10
	30........	89	19	0	1,691	0
May	7........	502	21	0	10,512	0
	14........	438	23	10	10,293	0
	21........	276	23	15	6,555	0
	28........	522½	23	15	12,409	7
June	4........	—	23	15	—	
	11........	296	23	10	6,956	0
	18........	89½	23	10	2,103	5
	25........	423	25	10	10,786	10
Second Quarter....		3,547	—		78,489	12
July	2........	280¼	24	10	6,872	5
	9........	712	26	10	18,868	0
	16........	467	26	10	12,375	10
	23........	705	27	0	19,035	0
	30........	439	28	0	12,292	0
August	6........	225	27	15	6,243	15
	13........	65½	28	0	1,834	0
	20........	240	28	0	6,720	0
	27........	407	29	0	11,803	0
September	3........	131	33	0	4,323	0
Ten Weeks		3,672	—		100,366	10

These are the exports from port Adelaide; the exports from the outports we can give only to the 30th June last. They were as follow: Wheat, 4,457 quarters, valued at £13,121; flour, 2,441¾ tons, valued at £45,847. We can now collect all the known and estimated consumption in various modes of the wheat grown in South Australia last harvest, and we obtain the following result:

	Tons Flour.	Value.	
		£.	s.
Wheat exported from Port Adelaide, Jan. 1 to September 3, 30,670½ qrs., equivalent to	5,221	93,063	12
Flour, ditto, ditto..	12,312½	258,662	9
Wheat exported from outports, January 1 to June 30, 4,457 qrs., equivalent to	758¾	13,121	0
Flour, ditto, ditto	2,141¾	45,817	5
Wheat used for seed 27,000 bushels, equivalent to	5,744¾	—	
Ditto, seed for hay, equivalent.. ..	638	—	
Flour consumed during two-thirds of year 1859, at eight bushels per head	13,617	—	
	40,733¾	£410,694	6

So far as we can see from the data we have now obtained, we have very little flour to spare. If the exports from the outports have been maintained during the last ten weeks at the same proportionate rate to the exports of the half-year as the exports from Port Adelaide have been kept up during that period, at least 1,000 tons of flour must be deducted from the stock apparently remaining. And a very strong proof that this estimate is not exaggerated may be deduced from the statement made at Yankalilla. It would appear from that statement that no less than 2,766 tons have been shipped from that port alone. From the table we have just given, it will be seen that no more than 3,200 tons were exported from *all* the outports combined during the half-year. The inference that a considerable quantity has been exported during the ten weeks succeeding, of which we have no official account as yet, is almost demonstrative. This reduces our stocks on hand (if we start from the official return of the yield of last harvest) to 3,150 tons; and as we shall require to feed our own population during the unexpired third of the year 6,808 tons, we find ourselves deficient to the extent of 3,658 tons; or in other words, that we have sold that much more than we could spare, and shall have to repurchase to that extent. But on the assumption that the produce of last harvest exceeded by 10 per cent. the estimated yield, we should have had on hand at the beginning of this month 8,266 tons. If this were the case we could still spare 2,458 tons for our extra-colonial customers, without subjecting ourselves to the risk of being placed on short commons. In conclusion, we must warn our readers of the great uncertainty attending several of the elements of this calculation. We have endeavoured to ascertain the true state of the case; but for all our care we may yet be wide of the mark. We have shown, however, we think indisputably, that it is impossible to affirm positively whether our stocks of breadstuffs are a little less or a little more than we shall require for our own use between this and Christmas.—*Adelaide Observer*, Sept. 17.

ON BREAD-MAKING.

BY WM. ODLING, M.B., F.R.S.

[The following paper was read before the chemical section of the British Association, Aberdeen, 1859]:—

I wish to introduce to the notice of this section of the Association a new mode of making bread, invented by Dr. Dauglish, and now practised on a somewhat large scale in London. The process is one of considerable interest, not only in a chemical, but in a manufacturing and a sanitary point of view.

The vesicular character of ordinary bread results, as is well known, from the development of carbonic acid gas uniformly throughout a mass of fermenting dough, whereby a loose, spongy texture is imparted to what would otherwise be a dense sodden lump of baked flour and water.

In fermented bread the carbonic acid gas thus generated within the substance of the dough is a product of the transformation or degradation of one of the constituents of the flour, namely, of the starch or sugar. In the plan I am about to describe the carbonic acid gas is produced independently and superadded to the flour, which consequently need not undergo any degradation whatever.

The following description furnishes a general outline of the process:—Carbonic acid gas, stored in an ordinary gas-holder, is pumped thereform into a cylindrical vessel of water, whereby the water becomes charged with the gas. This carbonic acid water is mixed, under pressure, with the flour, and the resulting dough, which becomes vesicular on the removal of the pressure, divided into loaves and baked.

At present the carbonic acid gas is produced in the manner usually employed by soda-water makers. A mixture of chalk and water is run into a large wooden tub, in which an agitator constantly revolves by means of an endless band, driven by a steam-engine. Sulphuric acid, flowing through a leaden pipe, closed at the bottom by a leaden cup of acid, which acts as a valve, is constantly dropping, by the overflow of the cup, into the mixture of chalk and water; and the carbonic acid gas thus generated passes at once into an ordinary gas-holder having a capacity of 1,000 cubic feet, where it is stored for use. But a different mode of producing the carbonic acid has been tried with success, and is now about to be employed. This process consists in the ignition of chalk, and is interesting as being opposed to our ordinary chemical notions of the circumstances under which chalk can be made to part with its carbonic acid. The chalk is heated for three or four hours in five small iron retorts resembling gas retorts. The first portion of gas, being constituted largely of air and steam, is allowed to escape: the remainder passes at once into the gas-holder. By this means a large supply of pure carbonic acid is obtained very cheaply. The lime remaining in the retorts, though not absolutely caustic, is very nearly so, and slacks readily with water.

From the gas-holder, the carbonic-acid gas is usually pumped direct into the water-vessel, but sometimes into a separate reservoir of condensed gas, which then enters the water-vessel by its own elasticity. The pair of pumps are arranged to work under a pressure of 200lbs. on the square inch. Any additional pressure opens a valve through which the gas re-passes into the gas-holder. The pumps are worked in a cistern of water, and the pipes leading from the pumps are encased in a sort of Liebig's condensing apparatus, whereby the great heat generated by the condensation of the gas is effectually withdrawn.

The water-vessel is a closed cylinder of copper, with hemispherical ends, tinned on the inside, about 5 ft. high, and 1 ft in diameter. Its upper extremity communicates, by means of a cock, with a cistern of water placed directly above it, and, by means of another cock, with a pipe leading into the upper part of the mixing or doughing vessel. This mixer is a hollow sphere of cast-iron, about 3 ft. in diameter, having a rotating horizontal axis, to which the mixing arms or forks are attached. Its upper part communicates by a pipe with the upper part of the water-cylinder, and its lower part by another pipe, with the lower part of the cylinder. It is furnished with two circular openings, somewhat less than a foot in diameter, one at top, one at bottom. The lids which close these openings of the mixer have each a circular rim or projection fitting into a corresponding circular groove or depression lined with vulcanite; and the apposition is rendered pressure-tight by means of a screw. The exact mode in which these lids are adapted varies somewhat in the different mixers.

In order to make bread, a definite quantity of water—about 20 gallons—is run into the water cylinder, so as to about three-parts fill it, the quantity admitted being read off upon a lateral gauge. The bottom lid of the mixer having been properly attached, the cloth nozzle of a shoot is introduced into the upper opening, through which a sack of flour and 3 or 4 lbs. of salt are passed, from an upper storey in the mixer. The cloth nozzle is then removed, and the upper lid properly closed. The closed mixer being then in communication with the closed water-vessel by the upper pipe, an exhausting pump connected directly with the mixer is set to work, and so rapidly and completely is the exhaustion of air from the interior of these two vessels effected, that in the course of two minutes a vacuum of 29 or 30 inches is produced. The object of this preliminary exhaustion is simply to prevent any admixture of air with the carbonic acid subsequently introduced, inasmuch as a great portion of this latter has to be used over and over again. The necessary vacuum having been obtained, carbonic acid gas is admitted, either directly from the forcing pump, or from the intermediate reservoir of condensed gas. The carbonic acid first enters the cylinder at the bottom of the contained column of water, passes through the water to the top of the cylinder, and thence into the mixer, an arrangement which promotes the thorough saturation of the water. Moreover, the gas is admitted through a rose furnished with a few minute openings only, whereby it does not pass through the water in mass, but is distributed equably throughout. The pumps are continued in action until the pressure in the two vessels has reached 100lb. on the square inch. Then, on turning a cock at the bottom of the cylinder, which is on a higher level than the top of the mixer, the water runs from the cylinder into the mixer by its own gravity. The kneading axis, with its arms, is next set going. The process of kneading differs from ordinary machine kneading in one important particular. The substance kneaded is not a tough vesicular mass of fermenting sponge and flour and water, difficult to incorporate, but a non-vesicular mass of flour and water only. This kneading is continued for a period varying from three to ten minutes. As a rule, the less the kneading of the flour the whiter and more perfect the bread, but with some descriptions of flour the kneading must be continued for about ten minutes, in order to develop the elastic and tenacious characters of the gluten sufficiently to retain the carbonic acid, although, with good flour, three or four minutes are generally sufficient. After the kneading is completed, the dough is forced out from the mixture by the elasticity of the contained carbonic acid.

The exit for the dough is of somewhat peculiar construction. In the bottom lid of the mixer, shielded by internal buttons to prevent the direct pressure of the gas, are two rectangular slits, each 2 in. long, and a quarter of an inch wide. From these proceed two flat tin pipes, which gradually increase in size, trumpet-like, until they meet together, when they unite to form one circular nozzle, about 4 in. in diameter. The object of this contrivance is to prevent any sudden expansion of the dough as it becomes freed from the pressure in the mixer. Thus, the section of dough as it escapes from the mixer occupies an area of 1 square inch only. It then passes through the gradually-expanding trumpet-pipe until its sectional area becomes equal to about 12 square inches, after which it is allowed to expand freely. The boy in charge of this exit for the dough has at his disposal a cut-valve, by which the issue of the dough through the pipe is stopped or permitted. He receives the dough in a succession of tins or French moulding baskets, and, by a little practice, is able to cut off from the continuous stream of dough, into each tin or basket, a quantity weighing about 2lbs. 4 oz. The tins with the dough in them are placed at once on the floor of the oven. The dough in the baskets is emptied on to wooden peels, and thence slid upon the oven bottom. This oven is what is termed a travelling oven. The bottom constitutes part of an endless chain revolving on two drums, by which the speed of its travelling can be regulated. The loaves enter at one extremity of the oven, and are rejected at the other, being baked during their transit.

The advantages of the new process are—1st. Its cleanliness. Instead of the dough being mixed with naked arms or feet, the bread, from the wetting of the flour to the completion of the baking, is not, and scarcely can be, touched by any one. 2nd. Its rapidity. An hour and a half serves for the entire conversion of a sack of flour into baked loaves; whereas in the ordinary process four or five hours are occupied in the formation of the sponge, and a further time in the kneading, raising, and baking of the dough. 3rd. Its preventing deterioration of the flour. In making fermented bread from certain varieties of flour, not in themselves unwholesome, the prolonged action of warmth and moisture induces a change of the starchy matter of the flour into dextrine, whereby the bread becomes sodden and dark-coloured. This change is usually prevented by the addition of alum, which is, indeed, an almost necessary ingredient in the manufacture of bread from glucogenic flour. But in operating by the new process, there is no time for the glucogenic change to take place, and consequently no advantage in the use of alum, even with any description of flour. 4th. Its certainty and uniformity. Owing to differences in the character and rapidity of the fermentation, dependent on variations of temperature, quality of yeast, &c., the manufacture of fermented bread frequently presents certain vagaries and irregularities from which the new process is entirely free. 5th. The character of the bread. Chemical analysis shows that the flour has undergone less deterioration in bread made by the new, than in that made by the fermented process. In other words, the percentage of extractive matters is smaller. The new bread has been tried dietetically at Guy's Hospital, and by many London physicians, and has been highly approved of. It is well known that for some years past the use of fermented bread, in dyspeptic cases, has been objected to, by members of the medical profession, the *debris* of the yeast being considered unwholesome, and liable to induce acidity. 6th. Its economy. The cost of carbonic acid is alleged to be less than the cost of yeast. Moreover, in making fermented bread there is a small, but necessary waste of the saccharine constituents, which is avoided in the new process. 7th. The saving of labour and health. It substitutes machine labour for manual labour of a very exhausting kind. The sanitary condition of journeymen bakers was investigated some time ago by Dr. Guy, and found to be most lamentable, from their constant nightwork, and from the fatiguing and unwholesome character of their labour, particularly the kneading. In a politico-economical point of view, the process is as important as removing bread-making from a domestic manual work to a manufacturing machine-work. From the character of the apparatus, the process can only be used profitably on a large scale, and not in small bakeries.

LAND MEASURE.—Every farmer should have a rod measure, a light, stiff pole, just sixteen and a half feet long, for measuring land. By a little practice, he can learn to step just a rod in five steps, which will answer very well for farm work. Ascertain the number of rods in width and length of a lot you wish to measure, and multiply one number by the other, and divide by one hundred and sixty, and you have the number of acres, as one hundred and sixty square rods make one square acre. If you wish to lay off one square acre, measure thirteen rods on one side, by twelve and a half on the other. This gives two and a half rods over a full acre.

LONDON, OR CENTRAL FARMERS' CLUB.

THE GROWTH OF SEEDS.

The first monthly meeting after the autumnal recess took place at the Club-house, Bridge-street, Blackfriars, on Monday evening, November 7th. Mr. John Thomas, of Bletsoe, resumed his duties as Chairman of the year, supported by Sir James Duke, M.P., Messrs. J. Marshall, L. A. Coussmaker, H. Trethewy, T. E. Pawlett, J. J. Mechi, T. Owen, James Wood, C. Howard, J. Howard, W. Gray, J. Cressingham, T. Congreve, James Thomas, E. Purser, J. A. Williams, Spencer Skelton, J. B. Spearing, E. Little, G. P. Tuxford, J. C. Nesbit, C. J. Brickwell, G. Browne, G. Fidler, W. Heard, R. Marsh, J. Bradshaw, J. Russell, S. Sidney, P. F. Pell, J. Odams, &c., &c.

The CHAIRMAN, in opening the proceedings, said he felt very great pleasure in meeting the members present after what might be termed their long vacation. He was sorry that he could not congratulate his brother-farmers on their position at the present time, believing as he did that the corn crops would be found deficient both in quality and in quantity. They, must, however, make the best of them as they were, and hope for better times (Hear, hear).

Mr. J. MARSHALL (of Riseholme, Lincolnshire) then rose to introduce the question appointed for discussion, viz., "The Growth of Seeds in Alternate Husbandry, without the admixture of Trefoil or Ryegrass." He said—Mr. Chairman and Gentlemen: Several months having passed away since we last had the pleasure of meeting in this room, and many events of great and grave importance having in the meantime occurred, not only affecting the interests of the members of this club, but of the country at large, and in which all classes are most deeply concerned, I cannot commence my paper this evening without expressing a sincere and heartfelt gratitude to an all-bountiful Providence for the blessing bestowed upon us by a most abundant and productive harvest, an especial benefaction to the artizan and labourer, which it may be hoped they will not fail to appreciate; nor can I close this part of my subject without appealing to your deep and fervent sympathies for the irreparable loss we have sustained by the death of a reverend gentleman (Hear, hear), the late incumbent of Ermington, and one of the earliest members of this club; who by his uniform kindness, his urbanity of manners, and unceasing and studious attention to whatever he undertook in reference to our wants or wishes, has indelibly impressed upon our minds a solemn and mournful regret, which time alone can obliterate from the recollection of those by whom he was best known (Hear, hear). Gentlemen, the subject I propose to introduce for this evening's discussion—that of the growth of seeds in alternate husbandry without the admixture of trefoil or ryegrass—is one of very great importance, not only to the sheep-breeder, as involving the produce of a material part of his occupation, and the means of providing for his flock during the summer months, but to the corn-grower also, as a preliminary course in the production of his subsequent crop of wheat, and may therefore be reasonably divided into two parts. The four-field system being that almost universally adopted on the light-land soils of England, and the intervening growth of a pulse crop in lieu of seeds not altogether a popular introduction—though, with clean cultivation, by no means, as a change, to be lost sight of—it necessarily follows that the seed crop, involving as it does one-fourth of the production of the whole farm, should be so arranged as to grow no description of grass which shall be liable at any period of the year to disorder or disagree with the animals depastured on it, on the one hand, or risk the filling of your fields with twitch or couch-grass on the other. I take it, as a rule, that the largest proportion of the seeds on every light-land farm is usually fed off by ewes and lambs; and it is to this kind of stock especially that my remarks are intended generally to apply. The custom of sowing large quantities of trefoil, on account of its cheapness, and, since its introduction of late years, of Italian ryegrass mixed with other small seeds, has long since prevailed in the northern and midland counties; and I am inclined to think, from my own experience, which has been pretty generally confirmed by that of others, that to the superabundant growth of trefoil at particular seasons of the year, and under certain circumstances, may be attributed the immense loss of lambs sustained by flockmasters during the autumns of 1857 and 1858. Those seasons were most disastrous, and thousands of lambs died between the months of October and January, without any very apparent cause, yet I am fully convinced that it may be traced and attributed to their feeding on trefoil seeds, under certain conditions, in the months of July and August. I believe no grass hitherto discovered will bear a comparison in produce, upon dry chalky or stony soils (or perhaps upon any other description of soil), that will give the same amount of sheep-feed in dry hot weather, or that will bear close feeding with the same impunity in alternate husbandry, as trefoil; and by the same rule, no grass with which I am acquainted grows with the same degree of rapidity, or produces in a short time so luxuriant or dangerous a pasture in warm, damp, showery weather—and it is to this condition of its growth that I am so particularly anxious to direct your attention. So long as you keep your three or four ewes and lambs per acre upon it without removal, you have perhaps little to fear, because they necessarily keep it extremely bare, and in that state it must always be kept, even though it inflict upon you the necessity of giving a little corn or cake to supply what may appear a deficiency in the pasture;

but since there appears no absolute necessity of growing it amongst your seeds, I recommend you to abandon it altogether. The objection I have to Italian ryegrass is chiefly founded on the effect produced on the subsequent crop of wheat; and when we take seriously into our consideration the fact that in many instances one-third, and in most one-fourth, of the crop is jeopardized, if not entirely destroyed by it, if we are to continue its growth, it becomes a matter of some moment to discover a remedy for so fearful an evil. Italian ryegrass is by far the most valuable variety as sheep-food, and produces perhaps double or treble more than any other variety of ryegrass; it is relished and eaten with avidity by every description of cattle, and they all appear to thrive upon it; still you cannot afford to sacrifice the integrity of your corn crop. I attribute the loss of the wheat plant, of late years so much complained of, to the increased growth of Italian ryegrass, and to no other cause. You scarcely ever see the same effect produced after a crop of beans or peas; there is no waste then, no dead plants to be pulled up by yards, and almost by acres, together, but a healthy tillering and gradual increase, and in the end a full and productive crop. I am, however, glad to be able—even under circumstances of compulsion to cultivate this objectionable plant—to point out to you a remedy, as far as the wheat crop may be influenced by its growth, and it is simply this: to plough your seed lands intended for wheat early enough, say the last week in August or the first in September, and to sow it not later than the 14th of October. This system has been adopted to some extent in Lincolnshire the last two years, and with the best and most marked effect. In order to prove this theory, I left two acres in the middle of a sixty-acre seed field, which was finished ploughing on the 4th of September, until the 4th of October, the day before it was drilled; the entire field was then pressed with a Cambridge roller, and drilled across; and that portion recently ploughed lost plant, and was at harvest, to all appearance, at least one quarter per acre less than the remainder of the field. I have seen the same effect produced by growing other varieties of ryegrass; that portion of the field sown with small seeds having no admixture of ryegrass, or any kind of bent whatever, lost no plant, and yielded, apparently, 25 per cent. more than the remainder of the field sown with different varieties of ryegrass and other small seeds. There is one other objection to the growth of ryegrass, which, in the minds of some men—and those very good judges too—must always operate against its general cultivation, and that is, the difficulty of procuring a sample of the seed entirely free from the seeds of couch grass. Now, in the substitute I shall propose, and I know of only one variety of grass at all adapted to "alternate husbandry," I mean Timothy-grass, the seeds are so dissimilar, and the facility of dressing out any extraneous matter so easy, that a perfectly clean sample may always be obtained, and no risk of an increased growth of twitch grass hazarded. I am, however, free to confess that even Timothy-grass will not produce so good a pasture as ryegrass, and that perhaps the middle course—that of growing a little of both—might in the end prove the most advantageous. In laying land down in seeds, in many districts, far too little seed of any description is commonly sown. I have a communication on this subject from a gentleman from Crediton, in Devonshire, who says, there, a mixture of 6 lbs. of red clover, and 1 lb. of white, with 2 pecks of eaver, is considered a good seeding. Now here, from 14 to 21 lbs. is not thought too much; and whether drilled or sown broadcast should be adhered to as the best system of depositing the seeds, is still a very open question. I rather incline to drilling, inasmuch as the seeds get a certain depth into the soil; whereas when sown broadcast much remains on the surface, and often does not vegetate at all. The mixture I propose for feeding purposes would be as follows: 12 lbs. of white clover, 2 lbs. of parsley, 2 lbs. of rib-grass, 4 lbs. of Timothy, ½ a peck of dwarf ryegrass, ½ a peck of Italian; the latter the sheep will eat to the very earth; the former they will not eat much of, but it will serve as a shade to the other grasses, and keep out the drought. For mowing, I would recommend 14 lbs. of red clover, and 2 lbs. of Timothy or ½ a peck of Italian ryegrass. In these minute quantities, ryegrass may be grown as an adjunct without perhaps much danger to the succeeding crop; and so far, and no farther, is it safe to cultivate it, though perhaps it might be wiser to omit it altogether; nor do I mean to say that two or three pounds of trefoil per acre, amongst other grasses, would endanger the health of a flock of sheep in ordinary seasons, but I am quite sure they would be safer and far more healthy without it. (Cheers.)

Mr. J. Thomas (late of Lidlington Park, Ampthill) was rather disappointed at Mr. Marshall not having entered at greater length into the subject which he had introduced for discussion. He had hoped to hear some suggestions which would have tended to enable them to grow their grasses every four years on light land, without risk of failure. To grow them every eight years was not difficult; but when sheep-farming was so rapidly overtaking tillage, they would of course be glad to learn what was the best means of keeping the largest possible quantity of stock on their farms. Valuable as Mr. Marshall's paper was, it had, he thought, more to do with the successful weaning of lambs, or the management of them in the autumn, than with the profitable growth of seeds. He (Mr. Thomas) was happy to say that he could remember scarcely a single instance in which he had lost his seeds. He had never adopted the plan of mixing them mentioned by Mr. Marshall. Bound down as many of them were, by their leases, to adhere to the four-course system, it was absolutely essential to find out what was the best mode of obtaining a pasture every fourth year. This he had only been able to do by rejecting ryegrass altogether, having discovered, in his early attempts at cultivation, that not only the first wheat-crop, the turnips, the barley, and the clover, but even the wheat-crop four years afterwards, never got over the damage done by Italian ryegrass, notwithstanding a large application of liquid manure. The plan with which he had been successful with his seeds was that of growing white clover and rib grass the first four years, and red clover and trefoil the second four. Upon that system, he had seldom experienced a failure. After the mowing of red clover, trefoil rarely rose a second time; and the land was placed in the best condition for the weaning of lambs. The placing of lambs on white clover, previously fed off by ewes and other sheep in the autumn, was almost sure to cause an immense mortality among them; and he had no doubt that a large proportion of the loss spoken of by Mr. Marshall as having occurred in Lincolnshire and elsewhere, arose from the lambs being put on white clover-leys previously fed off by sheep. If any of those whom he addressed had not tried the experiment, he would strongly advise them not to do so, as loss would certainly be the result. The same remark was applicable to red clover fed off, but not to that which had been mown; and therefore he did not think that, in cases in which they were bound to keep to the four-course system, they would find that plan better than the alternate one which he had adopted himself. Those who had farmed, like himself, dry sandy land, must be aware that, in order to ensure a wheat-crop afterwards, it was desirable to keep the land well shaded, not overstocking it or allowing it to grow too much seed. With regard to the timothy-grass referred to by Mr. Marshall he would observe that, if it were the same thing as the crested dog's-tail grass, it would generally be rejected by the sheep and other stock so long as they could obtain anything else. The stalk was so tough that it required no ordinary amount of exertion to break it. In conclusion, he would remark that he wished he could add his testimony to that of Mr. Marshall, that the harvest this year had been a productive one; but he must say that, whatever might have been the case in Lincolnshire, the harvest had not been abundant in that part of the country with which he was connected. An old poet said:

"Liberal, not lavish is kind Nature's hand;"

and he was sorry to say that, so far as his own observation extended, though Nature might have been "liberal," she had not, in this instance, been as "lavish" as in former years (Hear, hear).

Mr. Alderman Mechi (Tiptree), after sixteen years' practice, entirely disapproved of the mixing anything with red clover. In his county (Essex) they almost invariably sowed red clover alone once in eight years, taking special care to hoe in April or May any weeds which might have sprung up, in order that the clover might have all the ground to itself. With regard to the loss of lambs, he must observe that that evil was not attributable solely to trefoil. In corroboration of what was said by Mr. Thomas, he could state that if lambs were put on red clover, which had been previously fed down by sheep, they would die off, from what as yet appeared to be an unexplained cause. That had been the result of practice in his district. His own practice was to mow the clover, hoe it once, and make it into hay; then let it grow a second time, and feed it off when high, with sheep eating rape-cake. He was not a believer in the shading of the land. He believed that the reason why they got better wheat after clover had been allowed to reach its full size was this, that the root and the top were developed in proportion to each other. Over-close feeding prevented the stem and leaf formation, and thus stopped the development of the root, which was the food of the wheat. On light land he had adopted the practice recommended by Mr. Thomas, of having a crop of white clover; and if he considered the land was very saucy, he sometimes took it, as he had indeed done this year, for seed. As regarded Italian rye-grass, he thought the utmost attention should be devoted to the obtaining genuine seed, without couch or twitch-grass. He had reason to believe that a large quantity of couch-grass seed was actually exported from this country, and mixed abroad with the seeds, which were imported as Italian rye-grass (laughter). That he had been told by a friend who was in the trade, and therefore in the secret (renewed laughter). It was of the utmost importance, therefore, that they should all buy of some respectable person, who was careful in selecting his seeds. He purchased his seed from his friend Mr. Dickenson, and he found practically that he had Italian rye-grass, and nothing else. Italian rye-grass was very greedy in its desire for moisture, and being very much like the wheat crop, it was a bad preparation for wheat in the general acceptation of the term. He always grew some Italian rye-grass, irrigating it thoroughly. His cattle liked it, and throve upon it, there being no scouring, and he believed animals would do well upon it, provided there was an ample supply of moisture, which, with his means of irrigation at the rate of 6,000 gallons per hour, he had himself no difficulty in securing. He grew it for two years, and he had always found it to be not at all a bad preparation for wheat. He broke up the second year's growth at the beginning of July; he then sowed some red rape-seed, and after this had attained a certain height he either fed it off or ploughed it in. Proceeding on this plan, he had from some miserably poor land that year obtained four-and-a-half quarters of wheat per acre. (Hear, hear). If he were not able to break up that land in dry weather, so as to take an intermediate crop of rape, he would of necessity sow 5 cwt. of rape-cake and 2 cwt. of salt, and, although tens of thousands of wire-worms might have been seen in the ground previously, the result would be that he would not lose a single stem of his wheat-plant. That he had proved by experience.

Mr. Marshall: After a fallow?

Mr. Alderman Mechi: No; in a single ploughing. The wire-worms would entirely disappear; and he had been told that the cause of this was, that they ate into the rape-cake, gorged, and killed themselves. (Hear, hear). He thought that as a general rule they would be safe in drilling their clover. Having tried both plans, he was of opinion that it was generally a great economy of seed to drill clover; that 8 lbs. of seed would yield as thick a crop in the drilling as 16 lbs. would in the broad-casting. He was happy to be able to corroborate in some degree the account which Mr. Marshall had given of his year's wheat-crop. So far as he could judge from what he had seen in his own neighbourhood there was a very fair crop, and he hoped it would realize a fair market price.

Mr. T. **Owen** (Clapton, Hungerford,) had expected Mr. Marshall to give them some advice with regard to the management of their grass seeds, the sowing of the seeds in the summer, even so as to produce a fair crop of grass and leave the land in a kindly state for the wheat crop. The grand question of course was how they might at once grow a sufficient quantity of hay, and leave the land in the best state of preparation for wheat. There was very great difficulty in doing that. They all knew, indeed, that red clover was one of the best swards they could possibly have as a preparation for the wheat-plant. White clover, however, was anything but a kind lay for it. Nineteen times out of twenty he would rafter after white clover. With red clover he would certainly plough one earth, but he did not consider it safe to do so with white clover. As to Italian rye-grass, he thought it was poison to the wheat crop. Mr. Williams once recommended him to mix Italian rye-grass with his seeds. He did so one year, he would take care that he never would do so again (laughter). He really believed that he lost a quarter of wheat per acre where he substituted Italian rye-grass for the common Peacy rye-grass. The latter was bad enough for the wheat crop, but the former was ten times worse. Red clover was half the manure of a wheat crop, if they had a true plant. He had found that wherever there was a deficiency in the grass crop there was a corresponding one in the wheat crop, if sown one plough, and they could not therefore, as a general rule, depend upon red clover as a lay for their wheat crop. He had himself adopted what he conceived to be a safe principle, mixing 12 lbs. of red clover, 4 lbs. of trefoil, and a peck of common Peacey rye-grass, on light soil.

Mr. **Marshall** would be glad if Mr. Owen would tell them what course he pursued in reference to feeding.

Mr. **Owen** said, sowing as he did 150 acres of wheat, he had a certain quantity which came in red clover; the rest came in white clover, hop, rape, and so on. His white crop was sown mostly for food.

Mr. **Marshall** wished to know in what proportions the seed was sown.

Mr. **Owen** said he sowed about 16 lbs. of white clover and a peck of rye-grass. The white clover was sown distinctly from the red. What Italian rye-grass he used was also kept quite alone.

Mr. **Coussmaker** (Westwood, Guildford) said it seemed to be the settled opinion of those who had spoken, that it was not advisable to mix trefoil and rye-grass with red clover every four years. They all knew that red clover could not be grown once in four years; therefore, if they were bound to grow grass once in four or once in five years, they had better take red clover and a mixture of seeds alternately, so as not to mix them together. In his neighbourhood it was the practice to mix all the seeds together; but the best course was to adopt red clover once in eight or ten years, with a mixture of other seeds in alternate courses. There was one evil connected with red clover from which farmers had suffered immensely during the last few years, and which was, in fact, on the increase; he alluded to the prevalence of dodder. The evil was extending so much that many persons had lost nearly half the crop. Dodder was a parasite that grew upon the clover crop. When he first saw it several years ago, he did not consider it of much consequence; it did not then appear in the first crop, but in the second; but this year it had shown itself in the first crop as well as in the second, and he had lost one-third of the whole. Dodder grew like a fairy circle; at first you saw a patch five or six feet in diameter, it afterwards increased to 15 or 16 feet; wherever it grew it entirely killed the clover; and wherever the clover had been killed, a patch of weeds came up afterwards, however clean the land might have been. Wherever clover failed, wheat failed afterwards. Bad as the dodder had been this year, he expected to find it still worse next. This year he saw it in the seeds immediately after the barley was cleared away, which he had never done before; in a ten-acre field he found, when the barley was taken off, about a dozen patches, with a diameter of three or four feet each; and though he sent his men to pull it up by hand, they could not entirely stop it. It was not he alone who suffered; every one in his neighbourhood complained of the same evil. He had written to the person of whom he bought, and the reply was that he supposed it was imported in the seed.

Mr. Alderman **Mechi** believed, that if they bought their seed of those who grew it in this country, they would not be subjected to the loss occasioned by this parasite.

Mr. **Owen** begged Mr. Mechi's pardon. He bought his own seed of a person who resided within seven miles; yet in a seven-acre field there were fifty places where dodder was very conspicuous.

Mr. **Marshall** would like to hear a description of the appearance of dodder.

Mr. **Coussmaker** said it was a little plant with a small white blossom, and having also a very minute seed. It was a parasite running entirely on the clover plant, and was to be seen not merely on clover, but also on furze bushes and heather in the neighbourhood of moorland. A neighbour of his, who had rubbed some of it out, told him that the seed was very minute; the root was a fibrous one.

Mr. **Congreve** (Leamington Hastings, Rugby) wished to add one or two words to what had fallen from Mr. Coussmaker in reference to dodder. Six years ago, in riding along a road through a field of clover on his farm, he perceived that some of the clover was enwrapped by something that was new to him; and having just read something about dodder, he turned again to the book, and found that what he had seen corresponded exactly with what was there described. It took a circle of 6, 8, or 10 feet in diameter, and seemed gradually to spread. It was a little red fibrous plant without leaf, but having a white blossom. He felt exceedingly alarmed about it, because his horses were going to consume it, and also, he feared that the next year's crop would suffer. If his fears had been realized, which was not the case, he should have dressed his clover seed, as he treats his wheat, with a dose of blue vitriol, because he believed that the dodder was attached to the seed and not in the land. The land had not been in clover for eight years, and the dodder had never appeared before.

Mr. Alderman **MECHI**: Would not the treatment you speak of injure the clover seed?

Mr. **CONGREVE**: It could not do harm, if a a proper strength, and it might do good.

Mr. J. **BRADSHAW** (Knole, Guildford), after the remarks which had been made with regard to Italian rye-grass, could not forbear from giving the result of his own experience, in reference to a practice which had, he knew, been adopted on some of the best farms in the country. The failure of wheat after Italian rye-grass did not arise entirely from the use of that seed, but partly from the abuse of the produce. If Italian rye-grass, which was a most productive and valuable crop for feeding sheep and other stock, were kept down and never allowed to go to seed, it would, he believed, generally, not lead to the evils which had been mentioned. He knew that last year six quarters of wheat per acre were produced after rye-grass and both white and red clover, and on a farm in the midland counties, where he had been visiting within the last ten days, he had also been told of a very good result. He thought it very important that those who addressed that Club should state what part of the country they came from; he himself came from the south part of Surrey, approaching the Weald, and there he invariably grew rye-grass with red and white clover, sowing two pecks per acre. He had now a splendid crop of white clover, thirty acres, which he meant to feed off with ewes and lambs next year. He would either plough the land up, and make a bastard fallow of it, or sow beans and peas, in the expectation of a good result in wheat. In discussing a subject like this, it was desirable to state facts. In 1857 he grew 108 loads of wheat on 110 acres, or nearly 5 quarters per acre. That was a fact. (A **VOICE**: After Italian rye-grass?) Yes, after red and white clover, and beans and peas. It was, he concluded, not the use, but the abuse of Italian rye-grass, that was injurious. Moreover, what was successful in one district—for example, the Midland Counties or in Lincolnshire—would perhaps fail in the south. If he were to farm in Surrey as they did in Lincolnshire he would be a ruined man (Hear, hear). Hence the importance of its being stated by gentlemen who spoke in that room of their own practice, in what county they resided. No man, probably had smarted more bitterly than he had done in consequence of having discarded the practice on the other side of his own fence, and substituted for it what was successful in other parts of the country; but he had borrowed a leaf from his neighbours, and was now endeavouring to improve on their practice.

Mr. J. A. **WILLIAMS** (Baydon, Hungerford) said: a few years ago a neighbour of his planted Italian rye grass amongst all his grass seeds, and told him (what he certainly had not heard before) that Italian rye-grass would bear mixing with red clover. To his mind the two seemed like spring and winter, his idea being that Italian rye-grass would be seed long before the clover was fit to cut for hay. However, he sowed his whole crop in that way, and when he came to cut his red clover he found his Italian rye-grass infinitely more tender than his common rye-grass used to be at the same period. He regarded it rather as a crop of hay than as preceding wheat; and if his friend Mr. Owen had been led into error, it was perhaps from thinking more of an increased production of wheat than he (Mr. Williams) had done. If the seeds were permitted to grow to a considerable length, Italian rye-grass was perhaps the worst preparation for the wheat crop that they could possibly have. But with the limited amount of seeds at their command, for he really did not know more than about five, if trefoil and rye-grass were dispensed with, the question arose, what they were to do to supply their place? The growth of the clover plant was very uncertain. He did not see what those who farmed the light lands of Berkshire, Hampshire, and Wiltshire were, in that case, to depend upon; and, with stock, wool, and meat at their present prices, and wheat at 40s., he should hesitate to give up valuable seeds on account of the future wheat-crop. He, for one, was unwilling to cease growing a most valuable article on account of the effect it might have on the wheat plant. This year he had a piece of Italian ryegrass. Having fed it off in the spring, he subsequently mowed it for hay. He had fed it off again since; and he had now carted dung to it. Some of his neighbours might think that, after all this, he was going to sow wheat. Nothing of the kind; it was out of the question. He cared little for a crop of wheat, when such a crop as we had last harvested was sald for 40s. per qr. He was going to sow oats, and believed he could produce a magnificent crop from land which was not fit, perhaps, for a crop of wheat.

Mr. J. C. **NESBIT** (Kennington College) should have imagined that, in a discussion on the growth of seeds in alternate husbandry, more attention would be paid to the functions of the various kinds of seed, and to the rotations of crops. What they all wanted to know was, how these seeds acted alternately with each other, so that the greatest possible effect was produced. He was glad to see his friend Mr. Mechi coming forward that evening in support of a theory which he (Mr. Nesbit) put forward several years ago, with respect to the action of the clover-root upon the wheat-crop—namely, that the previous root-crop or clover-crop, by the development of its roots in the land, furnished subsequent nourishment for the wheat. If the clover were fed off by sheep, there would apparently be a larger amount deposited on the land; but he distinctly proved, not merely in theory, but by practice, many years ago, that, if they allowed grass or clover to grow to a certain height, the lower development would prove equal to the upper one; that the development of the roots would give a larger amount of food than could be afforded if the land were fed off by sheep. He was glad to find Mr. Mechi's practice confirming the correctness of this theory. The variations in the rotations of grass presented one of the most important points that they had to deal with. There was one point which had not been as much alluded to that evening as he could have wished; he alluded to what was called clover sickness—to the fact that upon some soils clover would not grow more than once in a certain number of years, while upon others it would grow in a much shorter period. This was a difficulty which was, thus far, utterly unexplained.

Mr. Alderman MECHI: Except by Liebig.

Mr. NESBIT repeated that they were not yet in possession of any clear explanation. He had tried various chemical manures on land which was cloversick, and none of them produced the proper effect. Nor did mere mechanical alterations produce any effect. The cause, in his (Mr. Nesbit's) opinion, lay far beyond chemistry; it was some peculiarity in the physiology of the plant, its character and mode of growth. The analyzing of a plant, in order to show what its powers of life were, how it grew, and under what conditions, was perfectly absurd. You might as well take one of the living men in that room, calcine him in a furnace, analyze the ashes, and then attempt to explain how that body grew. They wanted to understand the botany and physiology of plants, their habits, nature, and so on. The nature and habits of the clover plant, as one of the series in a rotation of crops, were, he repeated, not clearly understood at present. All they knew was that, many years ago they could get clover once in four years, and that in most places they could not do so at present. He knew a case in Suffolk, in which there was a large field, one-half peas and one-half clover. The occupier threw it all into clover, and then took wheat, turnips, barley, and afterwards clover again; and to a single inch where the clover had been before, there was seen the greatest difference from all the rest, and there was a splendid crop of clover grown. This was not a matter which a mere chemist could explain satisfactorily. There was something beyond the mere fact of the plants containing this or that; there was something in the habits of the plant which they did not at present understand, and never would until practical farmers turned their attention to the subject, and endeavoured to obtain the requisite information. One thing that materially injured the clover plant was the sowing it with barley, and thus preventing it from enjoying the air and the light of the sun. Many persons had, however, sown clover with wheat; and had secured better grain crops and more clover. It was very important that the clover plant, when it did get a full amount of light and air, should be allowed to disseminate its roots in the ground, so that they should obtain their full natural strength; whereas the usual course was to send in a flock of sheep in autumn to eat it off (cries of "No," and of "Yes"). Well, at all events, it was a common occurrence in some parts of the country to feed the young clover plant off at once, before it had been able to get its roots well in the ground and to attain its full strength. Farmers who had not been sufficiently careful in reference to the food of their sheep, often sent them in to the young clover, thus diminishing its real power as a plant.

A VOICE: Will that kill it?

Mr. NESBIT: It undoubtedly had a great tendency to kill it. If it were allowed to grow, it would secure a greater development, and there would be a better chance of another year's growth. As regarded the grasses generally, it was, in his opinion, desirable that in the practice of agriculture they should be varied as much as possible; while the different varieties, not merely of grasses, but also of roots, should be kept in rotation as far as possible asunder. He would always interpolate with the seeds, on soils that would bear it, a crop of beetroot or mangel-wurzel. For example, he would have one year red clover, four years afterwards mangel-wurzel, four years after that trifolium, white clover, and other seeds, and then red clover again. On proper soils, beans, peas, or other leguminous plants might also be interpolated. In the same way would he proceed with the root crop; he would invariably use two or three varieties of turnips, one after another, every four years, so as not to have the same sort of turnips on the same soil too frequently. They were not, as he said before, able fully to explain the causes of what occurred in this case; but when practice exhibited certain effects, they were bound, as sensible men, to make use of the knowledge which they had acquired, even though they might be unable to give the precise reasons. As regarded Italian ryegrass, he did not believe it would ever be as good a preparation for wheat as red clover, because it had not an equal quantity of roots, and therefore would not put an equal amount of manuring matter in the land; but, nevertheless, he thought that if its roots were allowed to remain in the land, and not taken away, ryegrass would in many cases be followed by a fair crop of wheat. On the highly-cultivated lands of Norfolk, where a very large quantity of oilcake had been used, good malting barley could not be well obtained immediately after turnips, but was good if the rotation was turnips, wheat, barley. The idea that the taking of two white crops in succession is injurious was absurd. That might have been the case formerly; but when the farmer was in such a much more independent position than he used to be, and when by means of oilcake and other artificial manures he was enabled to maintain the fertility of the land, the matter was one of perfect indifference; he might now with impunity take two white crops in succession, if he pleased. With respect to the dodder which had been so much talked about, he thought it must have occurred to almost every one present, that when Mr. Coussmaker first saw that article in his clover-field, he ought at once to have got rid of it.—[Mr. Coussmaker: "How?"]—By cutting it down and taking it away; instead of which, it seemed that this parasitical plant was allowed to continue growing upon the stem of the clover, sucking the juices which the clover required for its own use. He certainly should have thought that a gentleman of Mr. Coussmaker's intelligence would have destroyed such an interloper.—[Mr. Coussmaker: "That is more easily said than done!" (Hear hear)]—His friend surely was not aware that there was an old Act of Parliament still unrepealed that made a farmer who allowed weeds to grow in his field, to the annoyance of his neighbour, liable for damages (laughter). To return from this digression, he did not see how they could do without trefoil or Italian ryegrass, especially upon the light chalky soils of Hampshire and Dorsetshire. In this case, he thought, as in many others, the great danger lay in running into extremes. The grand point was to make a temperate and judicious use of the grasses in question, and to avoid going to excess. The chief remark which he had to make in reference to the discussion which had taken place that evening was, that the greater the amount of variation which was given to the grasses, clovers, roots, and pulse, the better would be the result. To this he would add that he would advise gentlemen engaged in practical farming to see if they could not do something towards discovering the habits of the clover plant, and thus enabling themselves, and the farming community generally, to deal with it in a more profitable manner than they did at present.

Mr. Coussmaker wished to explain, in consequence of what had fallen from Mr. Nesbit, that when he discovered the dodder among his clover, he did cut it down as closely as possible, notwithstanding which it spread in the second crop.

Mr. Pell (Scopwick, Lincoln) desired to state that he discovered dodder among his clover, growing to a circle of about two yards. In appearance it was a sort of wiry substance winding itself round the clover.

Mr. Spearing (Moulsford, Berks) had hoped that Mr. Nesbit or some other gentleman would have told them that evening what the clover dodder or doddern spoken of by Mr. Coussmaker was, or how it operated. He had himself noticed it very particularly. In the first instance the clover became sick and decayed in spots; then something arose which lived, as it were, on this decay. There was, he thought, a plant that existed on the decay and decomposition of the clover plant, but not being a chemist, he was unable to explain it properly.

Mr. Nesbit having bestowed considerable attention on the decay of the clover plant for several years, had discovered that where the plant had become sick, fungi were formed, which though very small were easily detected with the aid of the microscope. But this did not bring them any nearer a solution of the main question, namely how these fungi grew upon the plant. They knew that the plant got into an unhealthy condition, but they could not yet exactly explain why.

The Chairman said as the subject had been very well discussed, he thought it would not be becoming in him to make more than one or two remarks. In the first place, he would observe with regard to differences of cultivation on different kinds of land, that every farmer ought to understand his own farm, and to know whether or not it was suitable for the growth of Italian ryegrass, or red clover or white, or anything else. Having himself been a farmer for a considerable period, he must say that he had found nothing like red clover on heavy land. He agreed with Mr. Nesbit that if you could manage, consistently with the feeding of stock, to mow that twice, you generally got a better stock of wheat than if you mowed it only once. The roots developed much more in that case from the cutting of the top, and the vegetable matter produced in the soil led to a better subsequent crop. At all events, that was his own experience. He invariably grew the best wheat where he had cut his clover twice. He occupied both strong clay land and gravelly land. On his gravelly land he generally sowed a mixture of red and white clover and trefoil, in the proportions of about 10 lbs. of red clover, 5 lbs. of white clover, and 3 or 4 lbs. of trefoil. He was not aware that he had suffered as regarded his lambs, in feeding them upon the land of which he was speaking; he invariably fed, because he required the produce for the use of his stock. He had found that he could get as good a crop by feeding on this description of land as if he had mowed, but not on the strong heavy land. He had discarded the growth of ryegrass, whether Italian or any other, for some years; having tried it on several occasions, he always found his subsequent wheat crop considerably deficient in comparison with that grown on other parts of his farm. He had not, therefore, grown any ryegrass for a considerable period. As regarded dodder, he would observe that since he had been in Bedfordshire, now somewhere about nine years, he had not seen anything of it at all. When he lived in Essex he certainly did see something of it once, but only in the clover, and he imagined that it came with the seed, he having that year purchased foreign seed. It was a parasite which came, he believed, in the same way as smut and other diseases of plants. It was a most difficult thing to get rid of, and those who were subject to it must keep their men almost continually at work. Recurring to the subject of ryegrass, he agreed with Mr. Williams that on the light lands and hills of Hampshire and Wilts it was very useful in producing food for sheep, and that it must therefore be grown to a certain extent in such districts; but that remark was not applicable to the midland counties generally, or to the stronger lands of the country.

The Chairman then called upon Mr. Marshall to reply; but that gentleman declined to do so, observing that he did not remember anything that called for a reply.

On the motion of Mr. Trethewy, seconded by Mr. Sidney, thanks were awarded to Mr. Marshall for his introduction; and on the motion of Sir James Duke, M.P., thanks were also accorded to the Chairman, and this terminated the proceedings.

EXTIRPATING WEEDS WITH THE ROLLER.—The use of the roller is said to be a most effective way of killing thistles, mulleins, and other large weeds on grass lands. The Genessee farmer adds:—"No doubt the scythe makes a clean sweep; so does the surgeon when he cuts off a leg; but let a crushed limb remain attached to the body, and the end will be mortification and death."

THE DISTILLATION FROM BEET-ROOT.

CORRESPONDENCE BETWEEN M. CHAMPONNAIS AND M. CHRISTOFLE.

[Translated from the French from the *Journal of Practical Agriculture.*]

No. I.

"Sept. 16, 1858.

"My dear Sir,—You have properly interrogated me upon my beet-root distilling, and my cultivation of sorgho. The results that the former has given me for the season of 1857-58 are not brilliant. Without presenting you with a detailed copy of my account, the following is a summary placed in the hands of all the cultivators:

"I have worked upon 3,000 kilogrammes of beet-root per day. The average return has yielded me a little less than one hectolitre of alcohol of 90°, which I have sold at 54 f. To this sum we must add the value of 2,000 kilogrammes of pulp, for which I have debited my dairy and piggery at the price of 9 f. per 1,000 kilogrammes, or 18 f. Thus 54 + 18 = 72 f.

"The expense includes 3,000 kilogrammes of beet-root, which I have charged to the credit of my farm at 15 f. per 1,000 kilogrammes, or 45 f.; one working distiller, one mechanic, and one furnace man, 4 f.; one man and woman for washing and macerating, 5 f.; charcoal 6 f. 70 c.; incidental expenses 1 f. 35 c.; interest 2 f.; rectification 16 f.; total outlay 80 f. 5 c. This is without reckoning the royalty I shall have to pay M. Champonnais, and exhibits a loss of 8 francs per day.

"In the face of such a result I feel it impossible to go on, to my great regret, for I have always set great store upon my pulp for the cows and pigs, following the advice given me by an eminent agriculturist, M. de Hamoir, of Saultain, near Valenciennes.

"Such, my dear Sir, is what I can certify on the subject, and I trust the returns may be useful to agriculturists.

"I am, yours very sincerely,
"Charles Christofle."

No. II.

"Paris, 23rd Sept., 1858.

"Mr. Editor,—The considerable reduction that has taken place in the price of alcohol has for some time raised the important question, 'Is there or is there not room for the cultivator to continue for the present season the distillator? The agricultural press has been nearly unanimous in deciding in the affirmative; but, according to you, 'the distillation of beet-root will, this year, involve a loss, whilst it would be advantageous to consume directly, by cattle, the prepared, but not distilled beet.'

"In support of your opinion you publish a letter of M. Christofle, from which it would follow that during the last season his distilling has been carried on at a loss of 8 francs per day, and that hence that honourable agriculturist considers it impossible to continue, to his great regret, because he has always made much of his pulp.

"Allow me, Mr. Editor, to throw myself into this debate, not in order to go back upon an unnecessary discussion of figures, which are only of secondary interest in the question, but to appreciate the facts at their true value.

"This divergence of opinion proves completely that heretofore we have looked rather at the industrial than at the agricultural side of the question of distillation, accustomed as we were to derive large profits from the sale of spirits whilst the enormous price of that article existed. We looked upon the pulp only as an accessory, which the distiller did not scruple to get rid of at a low price, and the farmers to give of it in profusion to his cattle. Hence that kind, I will not say of discredit, for no accident has as yet arisen, in spite of the abuse made of it, but that depreciation to which the pulp has been subjected, like all other low-priced articles. And yet from the report of all the cultivators it is an excellent food. Some give it a value in nutritive power, at least equal, and others much superior, to the raw beet-root, taking weight for weight.

"Setting out upon this principle—which is incontestable, since it is confirmed by numerous correspondents, by the published accounts, and by the declaration of the Director of the College at Grignon, who in your number of the 5th of this month, page 182, declares that an experiment of three years has convinced him *that* 100 *kilogrammes of residue of beet-roots distilled by my process is worth much more, especially for fattening, than* 100 *kilogrammes of raw beet-root*—how can we admit the conclusions of M. Christofle, availing ourselves, without an argument, of the elements of his letter?

"I will willingly accept his figures of the expenses of fabrication, which is 19 f. 5 c. for working 3,000 kilos., or 6 f. 68 c. per 1,000 kilos., although that expense now little exceeds 5f. in other distilleries; but this difference is explained by the small quantity of beet-roots treated daily, and by the employment of steam, always more expensive than firing.

"Neither will I discuss with him the return in alcohol, which has not exceeded 3 per cent. of the beet-root, and which is doubtless owing to the small proportion of saccharine of the beet-root, or to some defect in the working, for the report of M. Bauclement states that the average return of sixteen distilleries visited by the committee of the Central Society of Agriculture in 1856, has been 4.19 per cent.

"I shall confine myself to this simple comparison: Since the pulp has a nutritive value at least equal, and even very superior to the raw beet-root, why is this set down at 15 f. per 1,000 kilogrammes in M. Christofle's account, and the pulp at only 9 f.? Why 9 f. rather than 15 f., and even 16 f., the price at which Grignon, in his account of 1856, declared he derived a profit from its consumption by his cattle. But is not M. Christofle himself of this opinion, when he says that 'he has always set a great value on his pulp?'

"This is understood with him better than any where else, for the emptying of the washing-tubs are thrown upon an asphaltic floor, from whence pulps and vinegar are conveyed into a large tub with the forage cut, in order to submit them together to a boiling by means of a jet of steam, so that nothing is lost of the constituent principles of the beet-root except 6 or 8 per cent. of the saccharine converted into alcohol. We might therefore say with good reason, we must not only reckon upon 66 per cent. of pulp, as M. Christofle has admitted, by analogy undoubtedly with what has taken place in distilleries where they have the bad habit of allowing the pulps to drain, but rather 80 per cent. at least, to which he fears not to add also the water of condensation of the steam admitted into the vat, which allows of the augmentation of the quantity of dry forage.

"It is, therefore, unquestionable, Mr. Editor, that in accepting even the reduced statement of 66 per cent. of pulps, be it 2,000 kilos., at the price of 15 francs per 1,000 kilos., the worth of the pulps would be 30 francs instead of 18 francs, and the account of M. Christofle would be balanced by 4 francs of profit instead of 8 frs. of loss; and that without looking at the unfavourable conditions of which we have spoken, especially of a return below the minimum, and which would otherwise sensibly increase the return price of the alcohol.

"Does not this reasoning in other respects agree with experiments upon the value of the pulp? How, indeed, can we admit that 3,000 kilos. of raw beet-roots—valued at 45 francs before their employment—have only a value of 18 francs after being deprived of only 6 to 8 per cent. of sugar; and when, above all, they have been washed, rasped, and half boiled—that is, reduced to the best condition for assimilation by the cattle?

"You will doubtless acknowledge, Mr. Editor, that I was perfectly justified in saying that heretofore we have too much sacrificed the agricultural side of distillation.

"Let us now, therefore, examine what advantages agriculturists might derive from giving to their cattle beet-roots properly prepared, without distillation, as you have recommended.

"First, what are we to understand by these words, 'Properly prepared?' (*convenablement préparées*). Undoubtedly you proscribe by that the use of raw beet-root—unfortunately still too much practised in the country, and so pernicious for cattle, by predisposing them to pleuro-pneumonia, which makes such ravages in the stalls.

"There remain, therefore, two methods of preparation, one of which consists in previously having the beet-root chopped and mixed with small quantities of cut straw and hay.

"But experiments have shown that this plan admits of allowing the use of only a very limited quantity of dry forage, requiring a very prolonged fermentation, with the addition of hot water, and often in conditions of uncertain success; whilst these forages, mixed in a greater proportion with the hot pulps of distilleries, enter quickly into fermentation, and are impregnated with that peculiar odour of the *vinasse*, which causes them to be eagerly devoured by the cattle.

"The sugar equally disappears under fermentation; and, besides, the price of the beet-root is increased by the processes of washing, cutting, and manipulation, which are nearly the same as in distillation.

"The other method, which consists in cooking the beet-root, and afterwards giving them to the cattle, with or without fermentation previously, is, without contradiction, preferable to the preceding as a mode of alimentation; but it involves expenses almost as great as distillation, since it is equally necessary to wash, cut, and boil the beet-roots, which last operation costs little less than 1 franc per 1,000 kilos., as for distillation.

"If you think, Mr. Editor, that the farmers can profitably consume, by their cattle, the beet-root thus prepared, what advantages would they not derive from distilling them, without more expense, as we may say, and thus obtaining a pulp in the best conditions for assimilation, and of which the price will be considerably reduced by the produce of the sale of spirits, whatever may be the market price of them?

"Under these considerations it will be difficult for me to believe that M. Christofle will persist in his determination; and doubt not that they will appear to you of a nature to modify your views upon this question.

"In any case, I shall feel obliged by your insertion of this letter in the next number of your journal.

"I am, &c.

"A. Champonnais."

The preceding letter admits that the distillation of beet-root reduces at least one-fifth, others say a fourth, and even a third, the alimentary quantity to give to the animals. This point suffices for us to say, that in a year of scarcity of food this distillation is not an operation that we ought to advise, or which can produce generally a profit. It is true that M. Champonnais thinks that the preparation given to the cattle by his system is less expensive than any other mode of cooking or fermentation. We believe that this is an error, and we have seen in Bourgogne an excellent food made, composed of beet-roots, cut, and half-cooked with portions of straw and unhusked wheat and a little oilcake, which food was much cheaper than the produce of distillation.

From the *Journal of Practical Agriculture* of the 20th October, 1858:—

"The year 1858 is memorable for the drought and the scarcity of its cattle-food; consequently the articles used in feeding cattle are dear, and they only will yield profit. It is for this reason that we have recommended the non-distillation of roots, and particularly beet-root. The objections and attacks which have resulted from it have not disturbed us; and in few words we have repulsed the arguments of our adversaries. Again, we have in this had the agriculturists on our side. Between us, M. Christofle has answered to our appeal when we demanded in practice a verification of the principles. Our readers have had before them the answer made by M. Champonnais to M. Christofle. That reply was a confession, and it will be amply confirmed by the second letter addressed to us by M. Christofle.

No. 3.

"Sautins, Oct. 14, 1858.

"My dear Sir,—The observations of M. Champonnais certainly require that we should break off, and the good faith with which they are presented stamps a great value upon them.

"In the mean time, I think that M. Champonnais, in invoking the agricultural side of the question, forgets a very important point.

"Many motives have decided me to come to the resolution of not distilling this year. The first of these is the loss upon the products of the distillery, which I have pointed out in my former letter. M. Champonnais corrects my calculation, and, giving to the pulp a value equal to the beetroot, he discovers a profit of four francs, when I find a loss of eight francs per day.

"We readily acknowledge that admitting this new mode of reckoning is to make my distillery gain in order to inflict a loss precisely of the same amount upon my dairy and piggery which must consume my pulp at the price of 15 francs instead of 9 francs, which would involve for them an expense of 12 francs per day upon the 2,000 kilos. which they consume.

"If we take the question under another point of view, we shall find the same difference in the products.

"I say, and I maintain, that 3,000 kilos. of beetroot give me 2,000 kilos. of pulp; otherwise, for the demonstration I have in view, I might admit the statement of 2,500 kilos. advanced by M. Champonnais; 1,000 kilos. of beetroot, therefore, are taken away each day from the alimentary resources of my farm during six months or 180 days, in order to give me, by admitting the benefit of 4 francs resulting from the calculation of M. Champonnais, 720 francs at the end of six months of a working which is not without some difficulty.

"This 720 francs represents 180,000 kilos. of beetroot, which sold at 15 francs would yield me 2,700 francs instead of 720. It is true that from these 2,700 francs it would be necessary to deduct the expense of cooking, valued by M. Champonnais at 1 franc per day per 1,000 kilos., and which I reckon at 5 francs for my 3,000 kilos. of beetroot—say, 900 francs for the 180 days. There remain, therefore, 1,800 francs, less 720 francs, or 1,080 francs of net profit by not distilling.

"The difference will be still greater if I give to the beetroots, according to the table of M. Boussingault, their value corresponding with their equivalent in hay. The nutritive equivalent of Silesian beetroot, compared with that of hay, being of 462, we may say that 1,000 kilos. of beetroot is equal to 21 6 kilos. of hay; but the hay being now worth 70 francs per 100 trusses of 5 kilos., 1,000 kilos. of beetroot are really worth 30 francs 24 cents. Such is the true value we must now attach to the 1,000 kilos. of beetroot as compared with hay, when we have in view the feeding of cattle and the production of milk.

"Now, is it not rational that every cultivator who makes this calculation should prefer purchasing beetroot at 15 francs, and even at 25 francs? Mixed with a little straw and hay, it will economise to him the purchase of hay at 70 francs per 500 kilos. In conclusion, desirous as I am that the light should shine on all, I propose to M. Champonnais an experiment.

"Do not forget that I am a milkman. I will separate my cow-house into two parts of twenty cows each. I will feed one lot with my soup, composed of—

30 kilos. of pulp
2½ kilos. of hay
5 kilos. of straw
1 litre of barley flour
60 grammes of salt
per head.

For the other lot, the mixture shall be the same, only substituting beetroot for pulp.

"These soups, you will recollect, are cooked in a valved boiler, into which I introduce a jet of steam during from three-quarters of an hour to an hour, according to the method of M. Hamoir de Saultain. We shall see what is the comparative production of milk from these two lots.

"In order that this experiment be complete, it is necessary to increase the ration, and put a certain number of cattle to fatten; but I have only two in excess of the twenty employed in the experiment, and that will not be a sufficiency. I would desire that the experiment should be watched by a person appointed by M. Champonnais.

"Such, my dear sir, is the idea suggested to me by my desire to seek truth and make it known. Let M. Champonnais be well convinced that I am not a partisan, and that if I am deceived I shall feel pleasure in acknowledging it. He has rendered a great service to agriculture; but this year, I much fear, in consequence of this exceptional circumstance of the dearness of forage, and the low price of spirits, it will not yield a profit from his fine invention. We must not lose sight of the fact that the principal advantage that the farm ought to derive from distillation is the cheap feeding of cattle.

"Be assured, &c.,

"Charles Christofle."

We see that M. Christofle has resolved to suspend the distillation of beetroot for the same motives as M. Bella at Grignon, for the reason that they cannot this year sacrifice an amount of nourishment so important as that which in the sequel of the amount is employed in producing spirits from beetroot.

THE DEVON ESTATES IN IRELAND.—Mr. Kekewich, M.P., said, at the Woodbury Ploughing Match dinner: With regard to my connection with Ireland, I have always looked on the Irish as my brethren. I have felt it sometimes difficult to deal with them, but I have always received the greatest possible kindness from them. There was a time when they were dreadfully depressed. I felt it my duty, as far as in me lay, to endeavour to raise them from the abject state in which they were placed. Through much distress, and when famine was around them, that noble estate, of which I had the charge, paid very little rent, and was very badly farmed. What is the condition in which it is now? It has been stated by the noble owner of the estate, by others who had inspected it, and by those who had had the management of it, that the larger part of that enormous estate of 40,000 acres is now in a good state of cultivation, that the people are happy and prosperous, that their rents are well paid, and that there is no sort of division in the class which rent on that estate. Gentlemen, this is a source of very great satisfaction to me; but it has been done with very great care: it has been done on that great maxim of "Live and let live;" it has been done on that maxim which was so well enunciated by my friend on my left (Mr. Smith), that of not regarding men in a different light because they differed in religion. It has been done on the principle that whatever our exertions may have been, we looked to the poor as well as to the rich, because we know that this world is made up of many classes, and that because it is made up of many classes, we are constituted one great social community; and the energies of every good and Christian man should always be directed to the best manner of bestowing benefits upon all classes of the people.

EDUCATE THE RISING GENERATION OF FARMERS WITH THE KNOWLEDGE OF CHEMISTRY AS APPLIED TO AGRICULTURE.

At the Tenbury Society the following practical remarks were offered to the meeting:—

Mr. Flewett said—Permit me to make a few observations upon a subject which I consider is one of great importance, not only as it regards the interest of the agriculturist, but the whole community. Knowing, as we do, it is from the soil we derive all that we eat, drink, or wear, should it not, then, be our bounden duty to make the soil yield all that it is capable of doing? And how are we to accomplish this but by the application of science to the practice of agriculture? Science, that has for its object the means by which thousands of acres may be made to double or treble their produce, has surely strong claims upon the attention of both landlord and tenant, and deserves the serious and careful consideration on the part of any one who feels an interest in the welfare and the prosperity of his country. The object principally I have in addressing you upon the subject is to urge upon the landlords and tenant-farmers of this county the immense advantages they would derive from the establishment of a chemical society in conjunction with the various agricultural societies in the county at large. To show you the necessity that exists for such a society I need only mention to you that all other manufacturers endeavour, by every means in their power, to avail themselves of the helping hand of science; but the greatest and most important manufacturers of all, viz., the manufacturers of our food, in too many instances rely simply upon the word of the dealer or merchant as to the value of commodities used in farming. This, my lord, is not merely a question for the farmers; it affects the landlord to a much greater extent than they themselves suppose. I need not for a moment dwell upon the fact that the purer the farmer can obtain his artificial manure, the more is the permanent value of the land increased. First allow me to call your attention to the manure known as superphosphate, which in reality should be ground bones dissolved in sulphuric acid. According to analyses made by Liebig, Johnson, Way, and other eminent chemists, bones contain in 100 lbs. as follows, viz.:—

Organic matter, of which 5¼ lbs. are nitrogen	33¼
Phosphate of lime	55½
Ditto of magnesia	3
Carbonate of lime	3¼
Salts of soda	3½
Chloride of calcium	1½
	100

Seeing, then, that there are 55½ lbs. of phosphate of lime in bone, it is not too much to ask our manufacturers of artificial manures to make one-half of this quantity soluble, but out of twenty-two samples obtained from the different markets in this county, only one has been found to reach 26 per cent., the remainder varying from that down to 2½ per cent. The following comparative analysis of two samples of manure made by two respectable manufacturers, and both sold at the same price per ton, will, I think, convince all present that something is requisite to be done to protect the farmer:—

First Sample.

Moisture	10·82
Organic matter	32·93
Silica	6·50
Soluble phosphates	15·70
Insoluble ditto	15·80
Sulphate of lime, &c.	10·25
	100·00

Second Sample.

Moisture	12·20
Organic matter	32·35
Silica	2·80
Soluble phosphates	7·92
Insoluble ditto	4·70
Chloride of sodium with a little sulphate of soda	19·60
Hydrated sulphate of lime, &c.	20·43
	100·00

I need not for a moment, my lord and gentlemen, hesitate to state that such glaring inconsistencies would not exist if a Chemical Society was formed, with an eminent chemist at its head, to analyze the various manures previous to and after being purchased by the farmer; and when we are informed by the above eminent authorities that wheat alone requires 49 per cent. of phosphoric acid to bring it to maturity; that turnips require 16 per cent., together with 68 of potash, for their development, I think you will agree with me that the subject is one of no mean importance, the turnip crop being the basis of all good farming. The first and most important step towards an improved system of cultivation is thorough draining, and next to that green cropping. The farmers being under the necessity of employing artificial manures to increase and improve their crops, it behoves, then, the landlords and farmers of this county to seriously consider whether what I have here stated would not conduce very materially to their interests. And here I must do my friend Mr. John Lett, of Rushock, the justice to state that it was he who first mooted the subject of an agricultural chemical society, at the same time mentioning the name of Mr. Trachsel as being a gentleman in every way qualified to undertake the responsible duties of chemist to the society; and, from what I have been able to ascertain, I have no doubt the latter gentleman is well acquainted with the duties that would devolve upon him. Mr. Flewett here warned the farmers to avoid purchasing their manures at any of the sales where "genuine superphosphate" is advertised to be sold, and at the same time he paid a compliment to the respectable manufacturers of artificial manures. He then proceeded to show, from sixteen samples of oil-cake obtained from different markets, the extent of adulteration practised in this most valuable article. In some instances the amount of bran was found to be as high as 30 per cent. "If," said Mr. Flewett, "the parties would rest with bran alone, no great harm (with the exception of fraud) would ensue; but when the mixture is composed of mustard-seed, rape-seed, and other deleterious substances, I cannot, my lord, in too strong language point out the necessity that exists for the formation of such a society as I have mentioned. In conclusion, permit me to observe that, in bringing this subject under your notice, I do not pretend to offer myself as the chemist to the society; my other engagements would preclude me from giving proper attention to so important an office; but I think the subject is one of paramount importance, and should at once receive the attention of the whole of the noblemen, gentlemen, and tenant farmers of this important county. Before sitting down, permit me to correct an impression respecting a paragraph that has appeared in several papers, relative to a discovery made by Professor Davy, of Dublin, respecting the existence of arsenic in plants In reference to this subject, I may say that I have no doubt that Dr. Davy is right to a certain extent, but this arises only where superphosphate is made from acid manufactured from copper pyrites; acid made from sulphur is entirely free from that dangerous poison."

CHEESEMAKING IN AYRSHIRE.

At the dinner of the Ayrshire Society, **ALEXANDER OSWALD**, Esq., the Chairman, said—I believe that when country gentlemen get up to talk to practical agriculturists about farming, nothing but their good breeding prevents them from smiling. But without being practical agriculturists landed proprietors can do a great deal. You have only to look around this town, and see what an energetic proprietor can do. I believe I am not wrong in saying that the person who introduced tile-draining into Scotland on an extensive scale was his Grace the late Duke of Portland. I have found drains at Auchincruive, put there 90 years ago by Richard Oswald, my granduncle. I believe these were the first drain tiles ever put into soil in Scotland. How were they made? They were bricks with about half an inch hollowed out on each side. I suppose there was one inch of pipe to five of brick. It is not wonderful, therefore, that so expensive a mode of draining land was not pursued. But that was only the beginning, and all things must have a beginning. Now we have pipes made in any manner we require. It is owing to associations such as this that the great advances in agriculture have taken place. I is to the parent association, the Highland Society of Scotland, that I believe in a great measure the steady and constant advance which agriculture has made in this island is due. It was very recently indeed that that Association induced our neighbouring country of England to adopt a similar means of agricultural improvement. The Royal Agricultural Society of England is not 20 years old. They generally have a battle for pre-eminence when they meet; but I believe we were in our fifties when they had not reached their teens. Not only have these associations spread to England, but they have spread to France, and I believe in a few years will convert it into a very different country. I know I took a bull there which cost me £8, and I sold it for £80. This Association has greatly improved the stock of Ayrshire; but one thing, till a very few years ago, seemed to have been totally forgotten. Fortunately, Mr. Campbell, of Craigie, remembered that the points of a cow—its horns, its tail, and its vessel—are not what we care about. He remembered that the produce of a cow is the important thing. He was the first person to suggest that we should try to make better cheese. I believe, though it is a disputed point, that General Dunlop was the first person who introduced from Holland the breed of cows which are now known as Ayrshire cows. They are spreading over the world. They are the favourite breed now in France. These cows have now produced, as Somersetshire men have told you, cheese very nearly equal to Cheddar. I have no doubt that we shall go on improving on all those matters. Before sitting down I cannot help saying that I believe one of the reasons why you have made this advance has been that you have been put upon your mettle. You were put upon your mettle when the late Sir Robert Peel threatened to annihilate the farming interest by introducing foreign cheese and foreign wool, since which time the prices of home cheese and home wool have constantly risen. At another time I, as your representative, ventured to differ with many of you when the same statesman threatened to inundate you with foreign grain; and from that time to this the value of every farm in Ayrshire has risen. And what is it owing to but your own strong hands and clear heads? We, the proprietors, have not the right of claiming any merit at all. To the tenant farmer belongs the high honour of having got over all those difficulties, and the honour of causing the prosperity of this country to increase day by day.

Mr. **CAMPBELL**, of Craigie, said—It was to an English farmer and his wife (Mr. and Mrs. Harding) that Scotland was indebted for their success in cheese-making.

Mr. **HARDING** said—He met them with feelings of something more than friendship. They seemed to feel glad for the little good they had received from one from Somersetshire. You remember, he said, when we set out four years ago, the question was raised whether or not as good cheese could be made in Ayrshire as in Somersetshire; and you remember I told you then several times in the public prints that I had no doubt in the world that they could be made as good. I have weighed the thing a good deal over in my mind since, and can see no reason why it should be otherwise. Some of you object to the pastures, and say you are not so well off in that respect as we are in England. You give the preference to old pastures; but I beg leave to differ from you, from what I know, with four years' experience added to my past experience. On my own farm I pasture half of my cows on artificial grass—good three-year-old pasture, and the other half on old pasture; and I am satisfied I should not make as much cheese as I do now, and particularly not of such good quality, if I did not use the young pasture. As you remember, when we were in Ayrshire we made cheese in different parts of the county, and on all kinds of land. When we had finished there were about twenty cheese altogether; and when we left I looked at them carefully, and I think no person could have picked out one cheese and said it was not like its fellow. I sent three of those cheese home to my own cheese-room to have them properly tested when they came of age. One of them was cut up by my friend Mr. Titley, and he did not know but it was one that had been manufactured in my own dairy. One of the three was made at Dalgig, another at Meiklewood, and the other on good pasture land at Holmbyres. I was satisfied that, whether we made the cheese at Dalgig, among the mountains; at Cunning-park, amongst forced grass; or among the heather at Corwar, where Mr. Wason is making the desert to blossom as the rose, there was no material difference whatever. My opinion is, that good cheese with good management, in the hands of a person who has something in the upper storey, can be made anywhere, whether at the Lands-end in Cornwall, or at Caithness in the extreme North of Scotland. From what I have seen to-day, I am perfectly satisfied my Ayrshire friends will yet make as good cheese as we in England can do. I have been perfectly delighted to see the progress you have made. When I went into that shed I was amazed—I had never seen such a sight before in my life. I venture to say that such a sight in any circumstances could not be got up in the whole county of Somerset. You are Scotchmen, and what you take in hand you seem determined to go through with. You remember the deputation you sent to us—my friend Mr. Drennan, who so well reported the result of their journey, and my friend Mr. Cunninghame. In some way or other they managed to find their way at once to what they wanted. They went out one day, and we were wondering where they had gone to; but while we were talking they were working with their eyes open, and prosecuting their inquiry; they were, in short, Scotchmen all over. In a few days a large manuscript came to me from these gentlemen, wishing me to make any corrections I saw necessary; and there was our system in full. We could not but wonder how they got hold of it. At the time when I left I scarcely thought there could be such an improvement as I have seen to-day in that shed. From the beginning to the end I went over nearly every lot—after the judges had passed them by—silently and carefully, and made my own private remarks; and I tell you candidly, that as a whole, I don't know where such another lot of cheese could be got together. We could not, in Somersetshire; and I won't mention Wilts or Gloucestershire; because we are 10s. or 15s. above them. You seem to have the right thing in view, and to know what a good cheese is. You aim at having the quality rich and good, the texture firm and full, and the flavour sweet, mellow, and pure. We have hitherto gone on making cheese only by observation. Now, as you have already done so much in Ayr, I don't see why we should not go a step further, and get at the chemistry of the thing. We learn from the chemist that milk, in its pristine state, possesses a quantity of sugar, which, in the process towards decomposition, produces lactic acid. There are also alkalies present, which neutralise the lactic acid, until an increasing amount of the latter is generated, when the milk becomes sour. Now, what we want is an instrument, or some method by which we can get the exact amount of acidity, so that we may know when to add the rennet, and how much of it to add, in order to produce a good cheese. When such a desideratum is produced we may then hope soon to be able to make cheese, not merely from observation, but on principle, scientific and unerring. He (Mr. Harding) then suggested that the society should not only award prizes to the best cheese shown at the exhibition, but that they should depute a committee to examine all the dairies of those competing; because it was one thing to bring a good cheese to a show, and another to be in the habit of producing good ones. He then spoke of the colouring of cheeses. He said he had observed in some instances a defect in the annatto used. It left a sediment, and consequently injured the appearance of the cheese. He had not seen any liquid annatto equal to Nicholl's, of Chippenham, and of which he never heard a complaint of this kind, neither had he in using it for six or seven years found any defect at all in it, and would therefore recommend it.

KINGSCOTE AGRICULTURAL ASSOCIATION.

The first Monthly Meeting, for the present season, of this Association was held at Hunter's Hall Inn on Tuesday, November 8th. There was a good attendance of members. Mr. J. T. Harrison, the President for the year, presided on the occasion. He was highly pleased to find their funds in such a flourishing state as to enable them to offer an increased number of premiums. He now asked the Honorary Secretary to read over the prize-sheet as altered and revised by the Committee. The propriety of attaching a library of agricultural publications was then talked over and generally approved of; after which the Chairman proceeded with the discussion of the evening by reading the following paper, the subject being—

OBSERVATIONS ON THE ALTERATIONS PROPOSED, AND THE IMPROVEMENTS INTRODUCED IN AGRICULTURE DURING THE PAST YEAR.

Gentlemen, we are living in perhaps the most remarkable period of the world's history, when improvements, which formerly occupied many years, aye even centuries to accomplish, are now suggested, planned, and executed in the course of a few or even one year. When I look back and call to mind our childish surprise at seeing the iron horse, as it was called, travelling with its train of coal waggons within a quarter of a mile of my birth-place on the Holton Railway, gaunt and grim, ungainly it would now be called, with its cylinder perched on the top of the boiler, and the long connecting rods attached to the wheels, and recollect that this was the great George Stephenson's first decided step towards enabling the people of the world to run to and fro as they do, drawn by those wonderful specimens of men's ingenuity and perseverance—the locomotive railway engines; when, again, I remember the careful toil and experimental anxiety that I day by day witnessed when Mr. Cook was laying down the first length of the electric telegraph between Paddington and Slough just 20 years ago, and now see how thought is transmitted like lightning to the end of the world by means of this invention, I say we live in an age of intellectual development, enterprize, and perseverance, far surpassing the wildest imaginations of our most speculative forefathers. The question then naturally presents itself, "What is the case with respect to agriculture?" In the midst of all this excitement, and eagerness to overcome the obstacles presented by Nature to the intercourse and interchange of ideas, is agriculture alone standing still, or is it keeping pace with the times? To say that it is, would be simply untrue; to say that it has done, and is doing much towards it, I am told—to assert that there is in agriculture an opening for the employment of the surplus capital of the country, such as may still cause us to open the eyes of astonishment at the results, I firmly believe. One of the first obstacles that must be removed is that presented by those who possess the land of our little island home. They must rise to the occasion. They must learn that as owners of the land they have duties to perform to their country as well as rights, and the first duty incumbent upon them is to remove every obstacle that presents itself to the improvement of the soil. But I shall be asked, "Do landlords ever present obstacles to improvement? This is a serious charge." Knowingly or unknowingly, and from long custom, they do. Every acre of England that requires it should be drained; every part capable of cultivation should be employed, and every encouragement should be given to the occupiers of the land to improve it to the very utmost, with the consciousness that their rights in such improvements will be respected. Then, and not till then, may we expect capital to flow freely towards the improvement of agriculture. I believe that England calls for, aye that she requires for the maintenance of the national independence, that this condition of things should be brought about. Consider the rate at which the population of England is increasing—it has doubled in the last half century. How is this enormous increase (and what, but for emigration, would it have been?) and the yearly addition to be maintained? Agriculture, no doubt, has done much to meet the increased demands, thanks be to the enterprize of the British yeoman, to the discoveries of artificial manures and food, and to the ingenuity of our implement makers, aye, and to the noble aid and encouragement given by many landlords; but is it not a fact that we are becoming, as a nation, more and more dependent upon foreign countries for some of the necessaries of life? This may be a necessary condition of things, but is it right? By no means. Remember the Great Napoleon's observations, that should England become dependent upon foreign countries for her food, she might be conquered. Thank God! England's hope for protection in time of danger is founded on a more sure basis than that. England is taking a noble part in the world in the present day, upholding the cause of the oppressed, striking off the chains from the enslaved, and spreading the knowledge of God's truth wherever her influence extends. Let her be true to herself, and she may go forth against the Goliath that threatens her, and God will defend the right. But is it not the more necessary that England should take every precaution, and raise herself above dependence upon her neighbour in case of necessity? The recollection of but yesterday's famine in Ireland should at the same time keep her humble, and make her farmers above all other men feel their dependence upon God. With the millions of England's gold and all her intelligence brought to bear upon that crisis, she was unable to prevent thousands of her fellow-subjects dying from famine. What then are the points we should aim at as agriculturists? I would suggest, then, 1st, to increase our production; 2nd, to take advantage of every appliance to diminish the cost of that production; and 3rd, to use every means to economize that part of our crops which we consume on our farms. I shall endeavour to seize on a few of the alterations proposed, and the improvements introduced under these three heads during the past year:

I. TO INCREASE OUR PRODUCTION.

Under this head it is very difficult to bring any striking instance of improvement or alteration before you. Our journalists reiterate the recommendations to drain and plough deep, carefully preserve your manures, apply them freely, increase their value by using artificial food, and be not niggard with artificial manure besides. For sandy lands the lupin has been tried, and found to yield a valuable addition to our sheep feeds. One subject deserves especial attention—the complaints which are becoming so general as to the failure of the swede crop. This is the case this year in the North of England. We find it is yearly leading to a more extensive growth of mangold wurtzel, the advantages of which are, the much larger quantity that can be grown, its excellent quality of keeping, even till the ingathering of the succeeding crop; it is especially useful to the dairy farmer, as it is chiefly wanted by him in the Spring, when it attains its best condition, and is excellent for increasing the milk of his cows. We cannot but gratefully welcome the enlarged employment of this root, at a time when the uncertainty of the swede crop would entail such serious evil. There is one point respecting the management of mangolds which demands especial attention, namely, its liability to injury from frost. The season will be long remembered by many who have experienced the effect of the unwonted frost of 1859. In future, to be pretty certain of securing, uninjured, our mangold crop, we must store them by the middle of October. The cultivation of mangolds is forcing upon us a very desirable reform in one respect—if we wish to grow them successfully, we must cultivate our land in Autumn. The old system of leaving our long stubble with their once valued crop ot couche for sheep to run over in the Autumn, and for game cover, must be surperseded, and immediately it is possible to set Bentall, Coleman, Woofe, or the common plough with a broad share to work in, they must go, giving the couch no time to think about darting its roots into the soil, affording all the annual wheat seeds an opportunity to vegetate, following as rapidly as possible (after, I would recommend, burning the remaining stubble and rubbish) with the plough. And here I must mention the excellent system recommended to us by our friend Mr. Burnett last winter, the satisfactory result of which we have seen in the magnificent crop of mangolds he has grown this summer. Mr. Coleman, of the Agricultural College, recommended a somewhat similar system, but I prefer Mr. Burnett's plan—clean your field in Autumn, spread your manure, bout it up; so let it be all the Winter. A few weeks before sowing, cross-harrow, thus destroying the young weeds; re-form the old bouts, and sow. Following these instructions, you may be almost certain of a good seed bed. I should like to commence the operation by a thorough breaking up of the land with Smith's steam cultivator. But how are we to manage this Autumn cultivation under any circumstances, in a busy time? This may fairly introduce the second subject I proposed, viz.,

II. TAKING ADVANTAGE OF EVERY APPLIANCE TO DIMINISH THE COST OF PRODUCTION.

And here increased machinery and all-powerful steam present themselves as our obedient servants, ready to do our bid. Ploughing by steam is no longer a matter of speculation; it is an established fact, and, I am persuaded, one that will rapidly cause a revolution in agriculture. In agriculture, it is established beyond all doubt, that the steam plough can do the work equally well, and at two-thirds the cost of horse power; and further, it can do that which cannot be accomplished by means of horses. We cannot anticipate what will be the effect of the deeper ploughing and more thorough cultivation which the steam plough will produce, but I know that every year I have a crop of corn in a field of stiff clay which was drained nine or ten years ago. I have a much more abundant crop of wheat, about two feet wide, over each drain, than on the other parts of the field, which I must attribute as much to the thorough trenching the soil then underwent, as to the drain that was put in below. And such trenching, steam can, and I believe will, accomplish. But besides doing the work more cheaply and effectively than by ordinary means, the greatest advantage to be derived from the application of machinery is, the saving of time—the having the power of doing the thing when it is wanted to be done; and here it bears strikingly upon autumn cultivation. A steam engine that can plough six acres a-day when you want it, and will not eat corn when the weather is unsuitable—so that you do not begrudge his remaining in the stable—must be almost an invaluable part of the stock of a large arable farm. But I believe we are far as yet from fully appreciating the purposes for which the steam engines may be made available. I am not prepared to go into the question; it is the question of the day. We know that we can have an engine which should take itself out of its stall, and draw a good load after it—which, on arriving at the field, can scarify, plough, subsoil, drain, break-up, and cultivate our fields—which can take itself home again, and, when fixed in place, shall thrash out our corn, and prepare it for market, bruise the oats for our horses, grind meal for our cattle and pigs, cut chaff and litter for all our stock (not our sheep), crush bones and corn, carry produce to market if required, and, at last, blow off its waste steam among our chaff. There are very many farmers to whom it cannot be a question as to the expediency of employing such a coadjutor. The proposed system of steam culture may be arranged under three heads:—1st. The portable engine, which is used as a stationary engine in the field, working the ploughs or grubbers by means of wire ropes. Mr. Smith's (made by Howard) and Mr. Fowler's are the best representatives of this class: to Mr. Fowler has been adjudged the prize of £500 by the Royal Agricultural Society. 2nd. The locomotive engine travelling on Boydell's endless railway is next, dragging after it either ploughs, cultivators, or circular grubbers. To this system there will be always the objection of treading the land, and the double difficulty of keeping the unwieldy horse as well as the implement in place. 3rd. Halkett's guideway, which is admirable in conception, and, according to the published accounts, works to perfection. The first cost of it, however, is very great, and will form a formidable barrier to its extensive introduction. There are many ways, such as draining, and providing accommodation for the labourer and stock of the farm, in which capital may be expended with greater benefit to the country.

Turning from the steam engine to the more simple machines, we have the mowing machine taking a prominent place among the new implements during the past year. Having used it myself I can speak with confidence as to its great utility; and not so much in lessening the expense of the operations, although that is important, as in the command it gives of the work. Haymaking is a tedious process. There is no more valuable precept in farming than "Make hay while the sun shines;" in truth it is but then that you can make, and then in reality it makes for itself; and an implement that enables you to cut down eight or ten acres a day, just when the weather suits, is invaluable, to the grass-land farmer especially. The one I used was Wood's; its fault is, not cutting close enough to the ground. This defect is remedied in that made by Burgess and Key; but I have no doubt it will be overcome in Wood's also, when it will be the more useful implement, as it is a reaper as well as mower, and does its work to perfection. I must mention the advantage I found in using it to forward autumn cultivation; by cutting the stubble close I was enabled to commence cultivating immediately, whereas after hand-reaping, the operation was delayed till we could mow the stubble, and clean it away; and when I tried hand-mowing last year, although it obviated this difficulty, I found the operations very slovenly. I will only add a few words on the subject of the objections raised by the labourers to the introduction of machinery. I have no hesitation in saying, that the extension of machinery will tend to increase rather than diminish labour; it may have the very desirable effect of distributing the labour more evenly over the year, but there is quite enough left undone in a general way on every farm, which it would be well to do; I have no doubt, besides, we are to grow heavier crops; and the labour required to prepare these, whether for the market or stock, will demand the spare time of all our hands. We should aim at keeping the same people at work all the year round as much as possible; and I believe that machinery, by easing the heavy pressure of harvest and other busy times, will enable us to accomplish more at the same cost, and keep nearly the same staff of men employed constantly. I would now call your attention to—

III. THE NECESSITY OF OUR USING EVERY MEANS TO ECONOMISE THAT PART OF OUR CROPS WHICH WE CONSUME ON OUR FARMS.

This subject is becoming year by year more interesting; and the attention of scientific and practical men is being so directed to it that it bids fair shortly to deserve the name of a science. Farmers have been accustomed for many years to use oilcake, bran, meal, &c., &c., in addition to their hay, straw, and roots, in fatting their stock; but the principles upon which the advantages gained are dependent, are far from being understood; a good result from a certain system is established, and it is followed by many; but the point to aim at is the best result—we want to know how to turn our straw, hay, and roots to the best advantage. The subject, although it may not appear so to us, is surrounded with difficulty, as admitted by Dr. Anderson, in his highly interesting and scientific address to the Highland and Agricultural Society of Scotland. I shall endeavour to bring, as clearly as I can, under your notice the present position of the question. Our cattle, during the summer months, rove at large about our fields, using with discrimination those grasses which their instinct tells them are best for them, and showing us very readily where our management is defective, by leaving the grasses that are sour and unpalatable. During the winter our system of feeding necessarily becomes artificial, and we ought to use our reason as the cows do their instinct, and make the proper selections of food for them. It is well known that could we consume the grass, from which we make our hay, in its green state, it would yield a much larger return. It is also known that the more rapidly the grass grows, and the younger, in reason, it is eaten, the more good it does the stock, which probably arises from its being more easily digested and assimilated. It is also determined that the early-made hay is much more valuable than that made from grass allowed to stand till the seeds are perfected; and the straw contains a large portion of woody fibres, as when ryegrass is allowed to ripen it is considered but little better than straw. The question then is, having a large portion of our winter provender in this dried state, can we by any means restore it to its original digestible condition? Will steaming do it? How doctors disagree! While some say that it merely makes musty food more palatable, and does little good besides, Mr. Horsfall says, "My experience of the benefit of steaming is such, that if I were deprived of it I should not continue to feed with satisfaction." Mr. Horsfall is no mean authority, but fairly deserves the title of the founder of scientific feeding. Others, again, think highly of the plan of mixing the pulped roots with chaff, allowing the mass to lie some hours, and then using the fermented food, supposing that the heat thus produced so impetuously in a great measure answers the same purpose as steaming. Both these systems call for further careful trial and exact comparisons. Mr. Horsfall, however, by no means depends upon steaming his food merely, for success; he studies the demands made upon his cows, and providing them with the food he finds they require, he succeeds both in summer and winter in maintaining an abundant supply of milk of superior quality, at the same time that his cows improve in condition, and eventually fatten for the butcher. To show the result of his treatment, he mentions an experiment he commenced in conjunction with two of his neighbours—one of them fed his cow on good hay, the other on somewhat inferior hay, ground oats, and turnips, whilst he fed his on the mixture he recommended. At the end of the trials the first cow had lost weight, the second remained stationary, whilst his own had gained weight. Making allowance for this accordingly, and valuing the milk produced, the result was, that whilst the cost of food was respectively 7s., 7s. 0½d., and 8s. 7d. per week, the profit was, 2s. 11d., 4s. 3d., and 10s. 10½d. The extra expense he was at in cooking and attendance he considered was fully compensated for by the improved quality of his milk. The difference is certainly sufficiently decided to demand attention. Now, mark, this result is not obtained by any process of trials and error, but is the result of a close and scientific examination into the subject. Mr. Horsfall does not confine his practice to dairying; he applies the same principles, with success, to fatting his stock. In his following remarks, viz., his first paper to the Royal Agricultural Society, in 1856, Mr. Horsfall appears to have fully foreseen the importance this subject would rapidly assume: "I think," he says, "that substances peculiarly rich in nitrogenous and other elements have a higher value for special than for general purposes; and that the employment of materials, characterized by peculiar properties, for the attainment of special objects, has not yet attained the attention to which it is entitled." Other enquiries have followed Mr. Horsfall, and Messrs. Lawes and Gilbert have made some interesting experiments, and Dr. Anderson has introduced some of them to elucidate his views, in his address to the Highland Society. They examined the carcases of different animals in various stages of fatness, and found that, whereas in animals in store condition the proportions of fat and flesh do not differ more than two to one, the increase of fat during the process of fatting is eight or ten times as great as that of the flesh, thereby showing the much larger proportions of the fat than of the flesh-forming substances that are required to be assimilated by fatting animals. They show, however, that animals can assimilate only five per cent. of the nitrogenous flesh-forming compounds contained in the food; whereas, of the fatty matters they can assimilate ten per cent., or twice as much, which in some measure accounts for the great value set upon those foods which contain a large percentage of nitrogenous compounds. To introduce Dr. Anderson's views to you, I will make one or two extracts from his address. He says: "The question reduces itself to determining how the crops commonly cultivated on the farm can be most advantageously used for feeding cattle, and whether they are best used alone or supplemented by food not forming part of the usual farm produce." Again, "The advantage of those substances (artificial foods) seems to depend on the fact, that in many kinds of food the proportion of nitrogenous matter is too small to permit the full benefit to be derived from the saccharine constituents of the food, and their effect is not confined to adding a certain quantity to the nutriment consumed, but serves to reduce invaluable substances existing in the ordinary food, and which, under other circumstances, would be lost." And he illustrates his views by experiments on feeding some oxen, which appear to prove his point. Here, then, is a new step in the investigation, and if thoroughly established, a most important one. Mr. Horsfall's position was to supply the animal with the substances he found it assimilated, either in the shape of milk or meat, in addition to what it required to maintain its animal heat, respiration, and its constant tendency to loss of muscle, &c., &c. Dr. Anderson goes a step further (which, however, Mr. Horsfall, in extract given before, in some measure anticipated) and shows that by a judicious supply of artificial food, not only does that food give a good account of itself in the improvement of the animals, but, besides, increases the absolute value of the ordinary food, by enabling the animal to more thoroughly assimilate it. The facts mentioned above, as ascertained by Messrs. Lawes and Gilbert, that only five per cent. of the nitrogenous, and ten per cent. of the fatty compounds of ordinary food are assimilated, show that there is a wide margin for such a result, and that there is probably a great loss of nutritious matters in using simply the products of the farm by themselves. Are, then, Thorley's and other cattle foods, that are offered to us—nay, almost forced down our throats—the grand desideratum? do they possess this talismanic power of turning, as it were, dust into gold? There is no doubt that the (apparently, at least) exorbitant price at which they are offered has raised a strong prejudice against them. In offering them at so high a price I think the makers are acting contrary to their own interest. By aiming at a smaller profit, on a more extensive scale, they would be much more likely to keep their secrets to themselves, and become popular. As it is, they are stimulating the energies of many to discover their secret, and possibly in the process to produce a more valuable condiment. But is Thorley's Food really valuable? We have Messrs. Lawes and Gilbert's analysis, which, no doubt, is right as far as it goes, but it is impossible almost to determine the ingredients of which it is composed. Most old shepherds can tell us the wonderful effect of fenugrek, which seems to be one of the ingredients. May there not be others equally efficacious? Messrs. Lawes and Gilbert do not, however, found their condemnation merely on the analysis, which shows the food to be composed of a mixture whose market value is only one-quarter of that charged for the food, but they have tried experiments on feeding pigs, the result of which, so far as it goes, is decisive against the food. But this trial alone does not carry conviction to my mind; pigs are always fattened on the best of food. Let the issue be fairly tried in fatting cattle, using the cattle-food with roots, against oilcake and bran-meal of the like value, with hay and roots, and let us know the result. Not having experience, I cannot give an opinion, but I fear prejudice is too apt sometimes to warp the judgment; and I am free to believe there may prove to be more excellence in Thorley's Food, when properly applied, than it has at present credit given it. I must mention a new and apparently very valuable introduction, viz., the cotton cake, which, when decorticated, seems to equal oilcake in value, whilst it is not nearly so costly. In closing, I must express my sense of my inability to comprise in the short compass of this paper the many subjects that its title would justify or call for. I have endeavoured to seize upon a few of what seemed the leading questions of the day, and which perhaps appear to stimulate to further enquiry, and urge to investigation and experiment, rather than to let us settle down on our lees, and comfort ourselves with the consideration that we have already attained to the highest point of agricultural science and practice.

The various topics alluded to were then commented on. It was thought reaping and mowing machines would shortly become general implements of the farm, but that they were not yet perfect; that cultivation by steam power might answer on heavy working soils where the holdings are large, but not so as yet, just in this immediate neighbourhood the soil being thin, making it easy of draught for the horse, as also the number of large (or crag) stones situate so near the surface rendering it liable to a great risk by breakages. The most animated part of the conversation was on the various concentrated artificial foods for cattle. The prevailing opinion, however, was that they are much too dear to admit of being used as a general food with any degree of profit.

A vote of thanks to Mr. Harrison for his able and interesting paper concluded the proceedings of the evening.

THE PRESENT CONDITION OF AMERICAN AGRICULTURE.

The season of agricultural shows has just terminated, and our farmers are free to return once more to the sobriety and tameness of every-day life. The almost universal success realized by the societies would seem to argue a state of prosperity in the country; and such is really the case, despite "June frosts" and the thousand ills which hypochondriac writers predicted as imminent. If the wives of our farmers could be persuaded to wear fewer foreign goods, and the husbands would treat their farms with more judgment, there would be but little discomfort to be apprehended from a partial loss of crop in any one season. At the shows there has been displayed an unusual wealth of ingenious machines; and to see the grand displays of the United States, New York, Illinois, and Saint Louis societies, one might naturally infer that now-a-days the farmer needs only to sit in his house, and have his crops planted, tended, and harvested by automatic action.

Of the more important of the smaller implements, I do not remember to have seen at the shows anything which interested me more than the grain-binding apparatus to attach to a reaping-machine. At the Illinois state show there were two contrivances, entirely dissimilar in principle, and yet both tolerably effective. One, the invention of John P. Manny, of Rockford, Ill., has an endless canvas belt—in place of an ordinary wooden platform—and another of equal width set to make an inclined plane connecting with the former. Both belts have the usual wooden ribs to catch and carry the fallen grain. Light slats over the inclined belt prevent the grain from being blown away. Arriving at the summit it tumbles into a cradle, in which a strong band with a light iron hook at one end has been placed; and enough for a sheaf having accumulated, an attendant, who has a seat behind the driver, trips a lever with his foot, the cradle revolves, the knotted end of the band catches in the hook at the other end, and the sheaf, securely bound, falls to the ground outside the next track of the reaper. This is a very ingenious contrivance, and by having a proper arrangement for arresting the delivery of grain over the belt when desired, it will no doubt be practical. The inventor is an old hand at the manufacture of reaping-machines, and will assuredly not give up until he has secured a thorough machine. The other binder, and the one which took the medal, was invented by Allen Sherwood, of Auburn, N.Y. Instead of string he binds with small wire, twisting the ends together in a tight knot, and at the same operation making the preparatory twist in one end of the next band. Let me explain. You have seen the triangular table of the Wood's machine which Mr. Cranston has shown in England for the two past seasons; well, now let there be fixed behind the driver's seat another for a binder, whose feet rest on a place behind a shield, which is placed on the inner edge of the platform; the rake's-feet is a half-circle shield of sheet-iron, to guide the sheaf as raked to within reach of the binder. Behind the shield is an elbow-joint, the short arm perhaps a foot long, and the long one something more, with a handle on its end. Along the upper side of both parts are eyelets, through which a No. 20 wire is guided to the handle, after having passed from a spool fixed between the driving-wheel and platform along the under-side of the platform and up through it to the eyelets. The binder, to commence, puts the end of the wire between a pinion and spur-wheel, which hold it firmly, while he pushes the elbow-joint towards the raker, and with the return motion passes his hand along the wire, bending it to the platform and up the off-side. He has plenty of slack wire to do this each time, for it unwinds freely from the spool, and, the end being held by the gearing outside, the bending back of the elbow-joint pulls wire up through the platform, and through the eyelets, as freely as required. Now, the sheaf is raked directly upon the wire that lies upon the platform. As it comes, the binder reaches out, takes hold of the handle, and pulls the elbow-joint towards him, thus causing the wire to tightly confine the sheaf of grain. He rests the end of the handle so that the end of the wire is caught between the pinion and spur-wheel, when he sets them in motion by turning a crank, and they twist the two ends of the wire together around the sheaf, making at the same time a new twist for one end of the next band; a knife cuts the bundle loose, and it falls, all nicely bound, upon the platform.

The work done by both of these binding machines is very good. I seized the sheaves by one side roughly, tossed them high in the air, and kicked them about;

but this harsh treatment seemed but to make them more compact. But does it not seem to you, that in your English grain-fields of five and six quarters to the acre, the Sherwood machine would never keep up with the travel of the knives? and even the other, although partly automatic, be, in its present state, inefficient? I saw enough last year to convince me that you and we need quite different tools for farming: certainly, if not different in principle, they must be in proportion. There, for instance, is the reaping machine. Our straw is light, and not caring to cut it very close to the ground, our reapers are set to cut usually about six inches; and often at the West, where straw is thought well-nigh worthless, a foot or more from the ground. The straw being short, we do not need very wide platforms; and the gavels, being light, are easily delivered. A man will rake off through the entire harvest, and not esteem the work much more severe than our old cradling. But take our reapers over to England, and we find that you wish your straw cut about as close as grass; and your splendid crops give such heavy gavels, that, what with pulling them up the steep inclined plane presented by the platform when the knives are set so low, and the dragging of the tops, which droop over the short American platform, the poor raker cannot work a half-hour consecutively, and the machine is declared valueless. Hence, I say, the necessity for making different styles of tools for the two markets. But because this is necessary, there is no apology for those in England and America who stoutly deny that the farm implements of the other country avail nothing in their own, with any modifications whatsoever; for intelligent men who have seen the tools and farms of both lands know full well that each possesses peculiar implements, the principle of which perfectly adapt them to the wants of their neighbour, and require sometimes but slight alteration in detail to make them favourites. When, therefore, your farmers read these descriptions of American tools, they would do well to see if they could not be made to suit their purposes.

In the black vegetable loam of the western prairies the cast-iron ploughs used on the heavier soils of the older States will not cleanse; so in their stead the farmers use light steel breasts, that when turned off from the factory are polished bright as silver. At the western shows I saw collections of two hundred perhaps of these beautiful ploughs: the wood of the beams and handles all selected with care, sand-papered, and varnished, and I assure you it was a sight to look at. There was scarce a plough in the lot that would not make an ornament for a shop window; and then at the trials, to see twenty or more of them turning over the black soil in the most effective manner, surely would gladden the heart of Allen Ransome.

At the city of St. Louis, away from this city fifteen hundred miles, they have the most successful agricultural society and best show-grounds in the country. The Society is only four years old, and yet it offered £4,000 in premiums; and its receipts at this fair were fully as large as our national society, say £8,000. The charge for admission is only one shilling on all the days, and no entry fee is charged exhibitors, and no shed rent for anything, all being furnished *gratis* by the Society. The grounds comprise fifty acres of park-like woodland, finely set in "blue grass," surrounded by a high neat fence, which is lined with rows of white-painted stalls, with arched doors. Eight fountains play continually, and mingle their waters to form a lakelet, which is stocked with gold fish; broad winding gravelled avenues lead to the several points of interest; commodious structures of brick, in different styles of architecture, are appropriated to the displays of machinery in motion, farm products, flowers, and fruits, paintings and statuary, and textile fabrics; while in the centre of the grounds, on an elevated plateau, is an amphitheatre capable of sheltering 25,000 persons. This enormous structure (which cost several thousand pounds sterling, and which is said to be larger than the ancient Coliseum) is intended solely for the exhibition and examination of stock. The plan cannot be too highly commended. At the tap of a bell the wide entrance-gates at one side are swung back, and all the animals of a class are led in by their grooms. They pass around the enclosure in full view of the people. The judges (for whose accommodation a tasteful pagoda is erected in the middle of the arena) make their examinations, award the prizes, and the blue (first prize) and red (second prize) ribbons are tied on then and there. If there is favouritism shown, or lack of judgment, or malice, the voice of an immense audience reverses the decision with loud clamour. Thus, not only are fair awards, in great measure, secured, but the whole people can see all the stock without the fatigue of walking around an area of fifty acres.

This amphitheatre is peculiarly beautiful. Light pillars, with airy arches between, support a roof with a richly ornamented cornice. Circles of seats rise in tiers one above another; wide promenades at the top and bottom of the banks of seats enable one to pass to any part of the building. In the centre a level arena, strewn with tan-bark and yellow saw-dust in alternate stripes; a two-storey pagoda in the centre, with a circle of sod about it, a fountain on either side, and evergreens set here and there; while on the mast, around which the pagoda is built, the national ensign floats a hundred feet above the ground. The amphitheatre is some 900 feet in circumference. By taking a stroll through the several "halls," one can see all the implements and other inanimate objects, and all the labour of sight-seeing will be accomplished; for as to the stock, he sits at his ease, under shelter, and that is brought before him.

You may imagine what it must be to see, as I did at St. Louis, twenty or more three-year-old bulls led into "the ring" in one class. They had all been washed, and brushed, and rubbed with silk handkerchiefs, until their hair fairly glistened in the sunlight. A grand prize of £200 had been offered for the best bull, and all the strength of the Western country was called out. Mr. Alexander, of Kentucky, showed the 2nd Duke of Airdrie, a grandson of Grand Duke, and Albion, a remarkably fine son of Grand Turk; Mr. James B. Clay, Kentucky, Fordham Duke, by Duke of Glo'ster; Captain Brown, of Illinois, King Alfred, by Cheltenham, out of the Bate's cow Heart's-ease, and bred by Jonas Webb; Mr. Chamberlain, of Ohio, Knickerbocker; and other leading breeders other famous bulls. At the given signal the procession entered the ring, headed by the snow-white Albion, and was greeted by shouts of applause. After careful and protracted examination the blue coronet was bound on the brow of the 2nd Duke of Airdrie, thus laying one more tribute at the feet of your Mr. Bolden.

I had the curiosity to ascertain the size of three of the most superior animals, and, in the belief that they will prove interesting to your readers, present them herewith. I feel confident of their correctness, for I made each measurement twice; I also add, for comparison, the partial measurement of Knickerbocker, and New Year Day, which were taken by the judges at the Illinois Fair.

Animal.	Albion.		2nd Duke of Airdrie.		King Alfred.		New Year's Day.		Knickerbocker.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Throat-hatch...... .	4	0¼	4	2	3	11	4	0	4	0
Brisket	8	9	8	9½	8	9½	8	9	8	10
Girth..............	8	0	7	11	8	1	8	1	8	1
Crops	8	3	8	1	8	2	8	9½	8	9
Flank	8	4½	8	0½	8	2	8	0	8	0
Depth of flank	3	5	3	1	3	2½	3	3½	3	3
Width of hips	2	3	2	0	2	3	2	3½	2	4
Length of rump	2	8½	2	7½	2	8	2	8	2	8
Length	7	5*	7	7*	7	9*	8	0	8	0
Arm	3	0½	2	4	2	7½	3	2	3	0
Shank	0	9	0	10	0	9	0	10	0	10
Hind-shank	0	10	0	10½	0	9¾	0	10	0	10½
Stifle	2	11½	3	0	2	10	..		..	
Length of body......	3	2	2	10	3	1½	..		..	
Rump-back measurmt	2	2	2	2	2	3½	..		..	
Hip-bone to hock ..	3	8½	3	6½	3	10	..		..	
Age	3 yrs.		3 yrs.		4 yrs.		over 4		over 4	

* Length from behind the poll.

You will readily perceive the remarkable development of Albion's flank. He imparts the peculiarity to his calves; so much so, that at Mr. Alexander's annual sale, this year, where there were perhaps twenty calves standing in a row, Albion's could almost be selected by feeling their flanks. I have been told that Mr. Alexander proposes to show him against your best bulls at the next Royal Show. If he does you must look well to your honours.

But, for the moment, bulls and every other of our old agricultural idols have given place in public favour to the one great question of the age, and the proportions and performances of our steam-ploughs are the general topic of discussion. I have enjoyed very favourable opportunities of witnessing the several trials at our shows, and feel convinced that we are nearer the possession of an effective and simple steam-plough than yourselves. How near, I propose to demonstrate in my next communication.

H. S. O.

New York, Oct., 1859.

THE FUTURE OF SMITHFIELD MARKET.

There are many nuisances and difficulties that time alone would seem quite able to deal with. How shall we purify the Thames, or tone down the tom-foolery of the Lord Mayor's Show? What means will ensure a cabman's civility, or thin out the blockade on London Bridge? Has any really reliable plan yet been adopted for finding a policeman when he is wanted, or for keeping a coach-horse on his legs over the stones? Let us confine ourselves to metropolitan evils; for it is with one of the first of these that we yet have to deal. Perhaps there never was such a target for the satirist or the mere grievance-monger to shoot his wit at as was Smithfield Market. How bravely, too, it stood the charge! How proposal on proposal came on with the boldest of fronts, only to fall helplessly one over the other before its omnipotence! Old ladies still continued to be almost driven or frightened to death. Much-bewildered bullocks, quite strangers on town, week after week would lose their way, and, naturally enough, step into some shop to inquire. The drovers swore, and their dogs barked. The public wrote letters and the papers wrote leaders. And yet Monday morning found the same crowd and confusion, only a something worse and greater than ever. But time works wonders, and even Smithfield market at last had to acknowledge the force of the precept. The market left Smithfield, and the busy world of London turned its attention to something else.

So old an acquaintance, however, was not to be slighted all at once in this way. Although the market might be gone, Smithfield itself remained; and the difficulty sprung up, mushroom-like, on its own soil, nearly as great a one as ever. What was to be done with Smithfield? Or, rather, as the speculators put it, what was *not* to be done with Smithfield? Rumour very soon applied it to every possible purpose the ingenuity of man could hit on. One week it was to be the site of a new theatre; by the next it was to be a City parterre; or, more literally, a *Nursery*-garden. Then it was officially announced that the City Solicitor was going to transform it into the one grand Terminus of all the railways. This was afterwards as officially contradicted, and a dissenting chapel on a large scale, a range of warehouses, and a dead-meat market, each in turn was declared to be "the base uses to which we had come at last." But report, unfortunately, did little more, until at length no one appeared to think anything at all about Smithfield, or what was to become of it. Save only perhaps, when on his way to the Eastern Counties, a sportsman, as he cast his eye over so cramped a country, would think what a nice place it would be to teach a young one to go in and out clever. Or a salesman, fresh from the nipping breezes of Islington, sighed over the desolation before him, as he remembered the stroke of business he had done on that classic ground in days gone by.

And old association, after all, is hard to conquer. The very names of some places involuntarily suggest the purposes, at any rate, to which they should be applied. Although it be true that by this the old Hay-market is but a colony of casino, café, and oyster shop, the old Smithfield Market is by no means inclined to change its skin, or lose its character after such a fashion. Smithfield Market *will* be a market still. Time has overcome even another of its difficulties. The Common Council have sat. Their Committee has reported, and the Government has consented. A congenial use has been found for the neglected desert of Smithfield, and the faithful who still linger on its boundaries have new hope and life. With a kind of retributive justice, moreover, the object to which the site is now to be devoted is, beyond all others, the abolition of a neighbouring nuisance. In a word, the north side of Smithfield is to be converted into a dead meat market, and Newgate Market is to be done away with. The latter has long been an abomination. Too close and confined to be wholesome, it has been equally injurious to buyer and seller. Nowhere is there so much bad meat as in Newgate Market, nor where, from the very inconvenience of the place, the duties of Inspectors and other sanitary officers are so seriously interfered with.

The City, as we are assured on very high authority, propose to spend something like two hundred thousand pounds in properly fitting up the market. Sir George Lewis has signified the consent of the Government to the proposal, as well as to the rate of tolls to be levied. A plan of the market lies in the office of Mr. Pearson, the City Solicitor, at Guildhall; and the only thing now wanting is the formal adoption of the Committee's report by the Common Council. There is of course little or no question of this following, and the future purposes of the site of Smithfield Market may be looked upon as determined.

Somewhat in connection with this step are two or three projects on the part of different railways for carrying their several lines more into the heart of London. The most important line, however, as far as the future of Smithfield is concerned, will be a very short, but at the same time a very necessary one. There must be some direct railway communication between the Cattle Market at Islington and the Meat Market in Smithfield. The one certainly can never be considered perfect without the other; and they should properly be contemporaneous undertakings. If, too, the Smithfield Club is also to go to Islington, we shall have the connecting link yet further to be strengthened, and the City must not be content with half-measures. So far the scheme sounds well enough; but, to be a great one, it must be *carried out.*

THE HERD BOOKS.

COATES' HERD BOOK; containing the Pedigrees of improved Shorthorned Cattle. Volume 13th. By Henry Strafford, Euston-square, London.

EYTON'S HERD BOOK OF HEREFORD CATTLE. Volume 4th. By Thomas Duckham, Baysham Court, Ross. Phillips, High Town, Hereford.

DAVY'S DEVON HERD BOOK. Volume 3rd. By John Tanner Davy, Rose Ash, South Molton. Longman and Co., London.

If the popularity of our three more celebrated breeds of cattle is to be estimated by the size or material of their several Herd Books, a conclusion is easily arrived at. In the autumn of this same year, Mr. Strafford issues another very bulky tome, Mr. Duckham one of far more modest pretensions, and Captain Davy a chronicle that scarcely exceeds the weight of a pamphlet. The adoption of any such a criterion, however, can only be made on certain considerations. Coates' Herd Book was an established authority long ere the others were thought of. It has, too, been well and carefully done from the first, and, moreover, proportionately well supported. The first great difficulty with it has been long since surmounted. Breeders have come to see how greatly it is to their interest that their stock should be entered in such a record; and there is no longer that hard whipping-up which might have been once so much required. In fact a shorthorn without a duly registered pedigree, has now comparatively no value. Both the home and the foreign market are equally alive to this, and a buyer's first question is far more likely to be, "How's he bred?" than "What's he like?" or, "What's his price?" No wonder, then, that each succeeding volume of Coates' book is larger than its predecessor, or that Mr. Strafford, fairly under weigh, dispenses with further preface, and leaves his work and its component parts to speak for themselves.

Mr. Duckham and Mr. Davy, on the contrary, are still in the throes of their labour. The Hereford Herd Book, after a very short career under the auspices of its originator, Mr. Eyton, and his successor, Mr. Powell, was on the point of falling through, when its present conductor, but a year or so since, took it in hand. It is not too much to say that in so short a period he has really done wonders with the work, while his official position in connection with the agricultural society of the county must tend more and more to the completion of such a register. But the breeders hardly yet appreciate the importance of this. We were assured at the recent meeting that many herds of pure Herefords have never been entered, and that no persuasion can put their owners to "the trouble" of making a return. This indifference can eventually only tell one way. It may be very well for a neighbour to rely on another for what he wants; but, if the Hereford cattle are to increase in extent and repute, if they too, as would now seem to promise, are to have their price for exportation, they must be traceable through the pages of their own family Peerage. This is the great thing, and very wisely too, that the foreigner or colonist feels he has to rely upon, and it will soon come to pass that an animal that is not worth entering is certainly not worth looking at.

Captain Davy is in every way a younger man. His record has only now reached its third part, while, unlike his two brother-editors, he succeeds to no other's duty, but is himself the originator of his book. It is perhaps, only fair to add, that so well has he satisfied the breeders of Devons with what he has done, that they are now engaged in getting up a testimonial to him, as "a public acknowledgment which ought no longer to be deferred." The Devon Herd Book deals less in repetition, and generally more in compression than its fellows. This may, in some measure, account for its smaller supply of material, although a list of contributors goes of itself to show that the high-bred North Devons are in the hands of comparatively but few breeders. Still there is hope for both Mr. Duckham and Mr. Davy, as the Shorthorn volumes come more frequently and of greater size, just as the work and its object is more and more known.

Although those out of the ring may not understand it, there are no more agreeable volumes to turn over by those in any way interested in the pursuits to which they refer. The increase of our agricultural shows gives even a further zest to this kind of lore, and a man traces out the happy cross or good old strain in "the first prize," with equal amusement and advantage. It is for this that we continue to insist on the names of the successful animals being given in the prize lists, convinced, as we are, that such information conveys of itself a lesson that must otherwise be lost. There is nothing more profitable just now than the study of good blood. It comes out in all sorts of ways—in first prizes, high prices, and lasting reputations; and we would have the gold-medal beast as well known as the winner of the Derby. The herd books, of course, give the stamp and character to all this, and it is a pleasing duty to see them each in the care of gentlemen so well qualified to conduct them. Mr. Duckham and Mr. Davy are themselves successful breeders of the sorts they represent, while Mr. Strafford, whether as an artist, and more especially as an auctioneer, is as thoroughly identified with the Shorthorns. It is said a man rarely succeeds without some innate liking for what he undertakes. In these three instances, at any rate, we have natural taste and early associations very happily directed.

Coates' Herd Book is the only one that now offers any pictorial illustrations of the breed its pages are devoted to, and this volume contains no less than a dozen portraits of celebrated animals. These include Mr. Bolden's Grand Turk, Captain Gunter's Grand Duke of Oxford, Colonel Towneley's Royal Butterfly and Rose of Towneley, and Mr. Brown's gold medal heifer, with other selections from the herds of Mr. Sanday, Mr. Torr, Mr. Chaloner, Mr. Tracey, Mr. Bate, and Mr. Duff. On the commencement, however, of the Hereford Herd Book, Mr. Eyton gave four plates of animals, "illustrative of the *colours* usually seen among Hereford cattle." The first of these was a "mottle-face" bull, Wellington, sold in 1816 for £283 10s.: the next was a "grey," Victory, sold at two years old for £100; the third a "white-faced," Cotmore, the first prize Hereford at the first meeting of the Royal Agricultural Society; and the fourth a "light grey and white," Brockswood. Of these varieties, as is well known, the white faces are now all the fashion. But the lithographs have still their value, and serve admirably to mark the different epochs in the history of the breed.

WHAT IS TO BE DONE WITH THE FROZEN MANGOLDS.

I had the pleasure to offer some suggestions immediately after the late severe frost, relative to the best course for the further storing of the crops; the chief suggestion being to leave them alone till a renewal of growth became evident. This would be seen by small leaves showing on the top, and by the recovering of their colour within; when these signs appear, then it is safe to store all the roots so restored, the frozen or decaying ones to be left out. What then is to be done with these frosted and decaying roots? Those wholly decayed, or those very nearly rotten, are, I fear, nearly a total loss. It may be worth while to gather them daily, or as they are wanted for use, and cast them into the fold yard to be browsed over by cattle and pigs. In this way many may be consumed to advantage. Both cattle, and that not over-nice animal the pig, will feed on them, the latter voraciously, and, in connexion with meal or corn, will be found to do well. The cattle will require good dry cereal food, or hay, cut chaff, beans, or old pea straw, &c. This is the best that can be done with these very bad roots. Don't give them to sheep.

The far greater portion of the frosted mangolds are, I am happy to say, very nearly restored to their natural state; and all those growers who have been prudent and patient enough to wait, can bear good testimony to the surprising effect and the great benefit the roots have derived from the fine weather of the few weeks subsequent to the frost. For my own part I am inclined to think those roots which have fully recovered their colour and partial growth are all the better food for present use; they contain less of that watery nature which is so injurious to stock when first taken up. I had about twelve acres standing with their tops on during the frost; they were taken up last week, Nov. 9th, 10th, 11th, and 12th, and stored in graves, with every prospect of success. A few (about half-an acre) were topped, those suffered most; they were taken up immediately after the frost, and are now in course of consumption by ten two-year-old steers, all of which are doing well; and, although they have a liberal allowance, not one of them shows symptoms of scouring. In the adjoining yard are twenty-one fatting cattle; now these have not so many given to them; but being from the twelve acres lot, secured before the frost, nearly all of them are suffering from looseness of body, *i. e.*, scouring; in fact, to-day their allowance has been further curtailed. These twenty-one have a small quantity of hay daily; the steers only wheat straw. Is not this difference owing to the abstraction of watery particles by the action of the frost?

My counsel then is to consume those roots first which stood out in the frost, and as there is, undoubtedly, more danger of their safety in grave, by all means give them freely to all and every kind of stock now, cattle, sheep, horses, pigs; run no risk; save other food on which reliance can be placed, but make the best use possible of the damaged crop. The best roots may be selected for pulping, which, mixed with cut-chaff from almost any kind of good straw, would make good food for young cattle. For cart horses a moderate allowance of sliced roots is best, although they will eat the pulped food with avidity and much benefit. By no means try any new scheme, such as sugar-making, brewing, &c., but let the consumption go on as fast as good judgment dictates. The graves or heaps should have ventilating holes, or a slight opening at top, to be immediately closed on the appearance of frost. Every grower will have to depend upon his own judgment; but with ordinary care and foresight, and much good contrivance, the untoward season may not prove so disastrous after all. There is a vast weight for consumption. The crops are astonishing; from 30 to 40 tons per acre is considered now but a moderate crop. The globes have greatly improved by cultivation.

REVIEWS.

THE WILD-FOWLER.

A TREATISE ON ANCIENT AND MODERN WILD-FOWLING, HISTORICAL AND PRACTICAL.

BY H. C. FOLKARD, Esq., Barrister-at-Law.

London: Piper, Stephenson, and Spence, Paternoster-row.

Turning over the leaves of this volume is like opening a new page of stirring history, adorned with a brilliant pen. Unlike the generality of sporting works in which there are such overdrawn, cloudy, and fabulous statements, "The Wild-fowler" stands apart from them all, carrying with it, in every page, unmistakable evidences of fairly-drawn, clear, and truthful facts. The author modestly tells us in his preface that he is a junior Barrister of the Western Circuit; and lest his readers should imagine him to be careless of his profession, he emphatically states that he is "ardently attached to it, and delights in the toil and devotion it demands." Here, then, is his reputation staked for the truthfulness of the matter contained in his book; and this is confirmed throughout the work, by references to the authorities from which he quotes on the subjects of "ancient methods of fowling."

It is positively reproachful to the sporting *literati* that such a fund of interesting detail should have been hitherto so imperfectly explored; it proves also that many writers upon sporting subjects write theoretically, making free use of the text of others, and, with a very imperfect knowledge of the practical part of the subjects they discuss, make up a volume, stamp it with an attractive title, and send it forth as their own individual experiences. Such impositions are soon detected by practical sportsmen. In "The Wild-fowler," however, the reader finds evidences of truthfulness in every page. On the one hand no one but a thoroughly practical and experienced wild-fowler could give us such vivid descriptions, such minute details, and explicit instructions for pursuing the sport in all its branches; and, on the other hand, no one but a scholar and highly-gifted writer could have given them in such a fine style of composition. The historical portions of the work are in no way inferior to the writings of some of the greatest authors of the day; and the anecdotes are told with a brilliancy and liveliness of humour that cannot be excelled, and which lay open the whole proceedings of the adventurous art so clearly, that the reader almost feels himself transported to the scenes of wild-ducks, gaggling geese, dreary moors, icebergs, and moonlit rivers.

In fact, the true sports and varieties of wild-fowling have never before been made known. No author has ever before attempted to write the history of this charming sport. We have hitherto remained in ignorance of the hundreds of arts and contrivances for shooting and capturing the beautiful varieties of water-fowl.

Every class of the reading and inquiring public will pounce upon this elaborate volume, and derive very much instruction and amusement from its pages. We have no hesitation in saying that it will become a standard work in every library, as well as a favourite and popular treatise with every sportsman. It ranks amongst those of the highest class of sporting literature, and will occupy a prominent position in the libraries of science and natural history.

There is so much trash published at the present day in the shape of "cheap literature," that it is quite a luxury to meet with a good wholesome volume, beautifully printed on paper of the finest quality, and illustrated with steel engravings, highly finished in the most modern style, by the most talented artists of the day.

The volume commences with the earliest history of wild-fowling, explaining from the classical authors the various modes of fowling adopted by the Greeks. The artifices of the Anglo-Saxons are also explained, chiefly from the Cottonian, Harleian, and other manuscripts in the British Museum. There is also a chapter on Egyptian fowling; then follows "the history of decoys," with minute details for planning and working the decoy-pipe, decoy-ducks and dog; these chapters are full of interesting detail, and upon a subject only very imperfectly understood by the general public. The flight-pond and mode of capturing dun-birds also form two highly-amusing chapters; the proceedings connected with it are very minutely entered upon, because the subject is entirely new in the literary world. By way of sample of Mr. Folkard's style of writing we quote at random from this chapter:

"During many years after decoys were invented, no means could be discovered for taking the large flights of pochards which daily and constantly frequented the decoys, to the vexation and annoyance of many an indefatigable fowler, who, day after day, raked his brain in vain to discover, by some ingenuity, a means of capturing them. The fowler saw them come and go to and from the waters of the decoy with impudent independence; they seemed to defy his efforts and ridicule his eagerness to take them. This state of things continued for many years after decoys were employed, with considerable success and profit; and it is evident that the flight-pond was not known until long after decoys had been used for taking all other species of wild-fowl frequenting inland waters.

"Throughout my researches I have been unable to trace any other original allusions to flight-ponds than those few scanty notices referred to in the introduction; from which it must have been impossible for any novice to arrive at the faintest idea of the true principles upon which the flight-pond was constructed, much less of the fowler's contrivances for taking his birds.

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"Before proceeding to explain the cumbrous machinery employed for taking dun-birds at the flight-pond, it is well worth while to inquire into the reasons which must have suggested so successful a trap. The dun-bird, it is well known, cannot rise suddenly in the air as a wild-duck; but in consequence of its legs being so far back, and its wings so short, it skims the surface, and proceeds many yards at an exceedingly low flight ere it can make an ascent, so gradually rising higher in the air as the distance increases from the spot whence it first took flight. The formation of the dun-bird is adapted by nature for diving and holding itself under water, but it is ill-suited for rising quickly, or making a rapid or very lengthened course in the air. With these facts daily before him, the inventor must have felt pretty certain of the success of his project when he first reared the flight-poles; and thus spread a net which carried certain destruction to every pochard which chanced to strike against it."

There are also highly-amusing chapters on punting, and the management of punts and punt-guns, both by night and day; also wild-goose shooting in every branch. In reference to the grey-lag goose Mr. Folkard observes:

"They often alight, just before dusk, in fields of green wheat; on the blades of which they feed greedily, always taking up their position in the most central part of the field, and seldom within range of an ordinary shoulder-gun. But they are not always secure in their rural position on the farmer's fields; indeed, most farmers in the flat counties are familiar with the habits of grey-geese, and often contrive, on being honoured with a visit by these birds, to stalk and kill one or more of the gaggle with a small shoulder-piece. Cunning sportsmen have sometimes stopped six or eight of these noble birds at a shot, when a gaggle has been, unsuspectingly busy, feeding in open fields or meadows.

"Whilst feeding in small fields they are generally perfectly mute; but when disturbed, their cackling is exceedingly loud and noisy; their note is a clangulous sort of call, sounding like 'haunk!' 'hawnc!'"

The anecdotes told by Mr. Folkard of punting, and wild-fowl shooting at midnight, are highly amusing; and some are of hair-breadth escapes and perilous adventures; but wild-fowling is an adventurous art, and those who follow it up with spirit and success must be prepared to encounter, on some occasions, dangers and difficulties; more especially by night, or among drift ice and strong currents.

From the very instructive chapter on "wild-fowl shooting in the fens" we quote at some length, as it contains much interesting matter befitting our pages:

"It is much to be regretted that so few particulars of fowling have been handed down to us in histories of the fens. It is evident that wild-fowl must have delighted in such regions; and before the drainage of the Great Bedford Level they were very abundant among the swamps, lakes, and islands in that district. According to Drayton, the wild-fowl which were taken in the Lincolnshire fens (part of the Great Bedford Level) were considered of superior flavour to those of the "foggy fens" of Holland.

"These fowls, with other soils although they
frequent be,
Yet are they found most sweet and delicate
in me."

Most of the species of aquatic birds formerly bred in this country, were, without doubt, hatched and reared in the fens of the Great Bedford Level, before it was drained and cultivated; indeed, so long as a vestige of fen land remained, considerable numbers were annually bred in various parts throughout the level; and this long after partial cultivation had commenced; although their numbers were greatly decreased by the progress of agriculture.

The Great Bedford Level contains a tract of sixty computed miles in length, and forty in breadth. It was originally a wooded country: the sea is supposed to have burst in upon it, and overwhelmed the whole tract, leaving a thick deposit of silt, beneath which modern excavators have discovered whole forests of firs and oaks; some of the latter, fifteen feet in girth and sixteen yards in length; many of them burnt at the roots, thus indicating the ancient method of falling timber which is adopted by uncivilized nations. Others appeared to have been rooted up by the force of the current rushing upon them.

Many years after these encroachments of the sea, and when a thick alluvial deposit had been extensively spread over the level, the Romans, with indefatigable perseverance which has never been equalled by the people of any other nation (except those of the Netherlands), raised an embankment, and thereby regained many thousand acres of land which the inundations of the sea had converted from forest into fen.

Pennant remarks that it was the complaint of Galgacus that the Romans exhausted the strength of the Britons "in sylvis et paludibus emunendis."*

There are abundant evidences of these facts; and among them Roman tumuli, coins, and other relics, which were found in the immediate neighbourhood of the level.

It appears that the laborious exertions of the Romans were not immediately inherited by the Britons, for when that industrious people deserted our island, the drains and embankments which they had made were neglected; and in process of time the sea again burst over them, when the level became a region of fens, lakes, and swamps; and so continued through many centuries; offering by far the most extensive and favoured haunts for wild-fowl of any in the kingdom; so that thousands of water-fowl thronged the district of the level at all seasons of the year.

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* Pennant's Arctic Zoology.

After the inundations of the sea and embankment by the Romans, the Great Bedford Level contained upwards of 300,000 acres of fen land.* In addition to which it was bounded by other extensive districts of fens, extending into the respective counties of Lincoln, Norfolk, Suffolk, Cambridge, Huntingdon, Northampton, and the Isle of Ely.

There were eight principal rivers formed by nature† for conveying to sea the waters of this extensive waste; these were the main arteries of the fens, and most of them originally united by connecting or tributary veins or streams; forming themselves at different situations into large estuaries, and thus making natural and excellent resorts for water-fowl.

Art has long since changed the current of these tributary streams and estuaries, so that scarcely a trace can now be found of the original works of nature.

These extensive tracts of land, in their wild and uncultivated state, abounded with game, were studded with lakes, and afforded admirable scope for the sports of the field.‡ Such a country, as might be expected, was far better adapted to those pursuits than the regular operations of husbandry. The opportunities it afforded for enjoying the pleasures of hunting, fowling, and fishing were unrivalled.

> "The abundance then is seen, that my full fens
> do yield,
> That almost through the isle, do pester every
> field."

Whittlesea Meer and Ramsey Meer were two of the largest pools in the fens; the former was especially celebrated for its great variety of water-fowl and abundance of fish.

It was strongly urged at the time of the proposal for draining the Lincolnshire fens, that the scheme, when carried out, would drive away the feathered and finny occupants of the meers, and spoil both the fowlers' and fishers' sport. A bold standing in behalf of these two classes was made, in opposition to the promoters of the undertaking; when the defence was, that there were many meers and lakes which would be left in their original state; that the fish and fowl preferred rivers and channels to wide-spreading waters, and that the additional number of such receptacles would tend to the greater preservation and increase of fish and fowl, rather than the extermination of them.§

Previous to the drainage and cultivation of the fens, Lincolnshire was termed the aviary of England for wild-fowl;* and that county, conjointly with Cambridgeshire, was the best of all for fen-bird shooting. These were the falconer's and wild-fowler's first and favourite places of resort. Their best sport was to be found in the wild and impenetrable swamps and dykes of those counties. Thousands of wild-fowl used annually to be bred among the bulrushes, sedges, and reeds which abounded in those parts, and formed the very strongholds and nurseries of the aquatic species; and whilst fens and moors remained as nature left them, the numerous and beautiful varieties of waterfowl revelled in the luxuriant feedings of such sequestered spots, which seemed specially planned by nature as the habitations and breeding haunts of bird, whose home, whose resting-place and subsistence are on the waters and in the fens and moors. In those days their greatest enemy was a species of rapacious bird, which is alluded to by Pliny as haunting lakes, fens, and standing waters for the purpose of preying upon water-fowl. But now there is scarcely a moor in the land, and only a few fens, but such as have been drained and cultivated to such an extent as to have seriously injured, if not completely uprooted and destroyed the retreats of the aquatic species.

Thus the sportsman learns with regret, that whilst the greedy agriculturist has attained his ends, and converted many thousand acres of swamps and fens into arable and meadow land, such conversion has only been attained at a partial sacrifice of one of our most healthful and interesting sports, and the driving from our shores of a variety of the largest, rarest, and most beautiful and useful of the wild feathered tribe.

* * * * *

A sportsman living in the country of moors and fens, near the sea-coast, may even at the present day have sport without end, and wild-fowl shooting, in severe winters, to his heart's content; provided he takes that delight in the sport which will incur the necessity of early rising, with energy and indefatigable exertion.

Many and many are the pairs of duck, mallard, and teal that I have brought down with the shoulder-gun before daylight, when there was only just sufficient light to see an object clearly enough to shoot it; and without knowing, until my dog brought it to my feet, what species of fowl it was.

The secret of success in this branch of our pastime is to rise early, and be at the most likely dykes just at dawn of day. The sportsman should move on briskly from one dyke to another; and if there be any wild-fowl among the sedges or reeds, and the dyke not very extensive, they will rise without the assistance of a dog, or any extra alarm from the sportsman; whose object should be to pass on quickly, that he may get as near to his birds as possible, and be the more certain of killing.

This kind of wild-fowling, when the birds are moderately abundant, is an enviable sport; and they may be considered tolerably abundant when a sportsman is able to kill, on an average, four or five pair a week. The sport is unequalled by any with dog and gun; but success depends mainly on the time chosen for the walk. The sportsman should be on the moor, of a morning, as soon as he can see an object in the air with sufficient distinctness to knock it down.

The beauty of this kind of sport is, that whilst walking the moor, there are also fen-birds of various species to be met with, to say nothing of the numbers of snipes; and when the sportsman has tried all the ditches for wild-fowl without success, and day-light has risen upon him, he need not return home with empty pockets. He has nothing to do but draw the large shot from his gun, put in smaller, and go in search of snipes and plovers."

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* Well's History of the Drainage of the Fens: 1830.

† *Ibid*, p. 6.

‡ *Ibid* p. 55.

§ "As for the decoy of fish and fowl, which hath been no small objectn. agst. this public work, there is not much likelihood thereof; for, notwithstanding this general draining, there are so many great meers and lakes still continuing, which be indeed the principal harbours for them, that there will be no want of either; for in the vast spreading waters they seldom abide, the rivers, channels, and meers being their principal receptacles; which being now increased, will rather augment than diminish their store."—*Dugdale on Embanking:* A.D. 1772.

* Fuller's Worthies of England, by Nuttall.

Among many other interesting details, the various modes of shooting and capturing fen-birds, snipes, and woodcocks are explained, together with the curious artifices of wild-fowling employed in foreign countries.

In conclusion, we simply ask our readers to compare Mr. Folkard's work with that of Colonel Hawker, or indeed with that of any other author who has attempted to describe the art of wild-fowling; it is by comparison with such works that the merits of the author may be traced, and the pages of "The Wild-fowler" appreciated.

ROUTLEDGE'S ILLUSTRATED NATURAL HISTORY.
Part VI.

By the Rev. J. G. Wood, M.A., F.L.S., &c. Author of Anecdotes of Animal Life, &c.

With new designs by Wolf, Harvey, Weir, Coleman, &c.

London: Routledge and Co., Farringdon-street, and New York.

This is a well-written, amusing, and instructive work, the author of which is well known as a naturalist of extensive acquirements and mature judgment. The present part is chiefly taken up with the history of the dog in all its varieties, the engravings of which are faithful and spirited representations of the originals. Mr. Wood justly considers the parent stock of the dog a very doubtful question. Like that of the cereal plants, it must be traced up far beyond any period when an original type can be identified. That there are, and always have been, wild dogs in many parts of the world, is not to be disputed. But both the fox and the wolf, to which some naturalists have referred the origin of the dog, have characteristics and instincts entirely different from that animal; and the unconquerable enmity between it and the wolf is a strong proof of their separate descent. Nor can we, when reflecting on the wide differences in the various breeds of dogs, believe that they all owe their origin to one stock. Be this as it may, the dog is in every country the friend and companion of man, and to his master displays an attachment which ceases only with life. Mr. Wood's work brings out the characteristics of the various breeds of dogs, as well as of other animals of which it treats, in a pleasing and lively manner.

BRITISH FERNS AND THEIR ALLIES: an Abridgment of "The Popular History of British Ferns," and comprising the Ferns, Clubmosses, Pepperworts, and Horsetails.

By Thos. Moore, F.L.S., F.H.S., &c., Author of several works on Ferns, &c. Illustrated by W. S. Coleman.

London: Routledge and Co., Farringdon-street, and New York. 1859.

The cultivation of this beautiful tribe of plants has been deservedly fashionable since the invention of Ward's glass cases, which has introduced them into the drawing-room. But independent of this, their extreme elegance of structure and the ease with which they are cultivated, have made them favourites with many persons whose taste for vegetable life does not include a knowledge of botany. To those, however, who have studied that branch of science, the ferns, in all their varieties, possess characteristics of great interest, independent of their beauty of conformation. It is, however, to the former class of readers, or to the student of botany, that Mr. Moore's present abridged work is chiefly adapted, as an introductory essay; and to such we recommend it as an instructive and entertaining epitome of the history of this elegant tribe of plants.

THE JOURNAL OF AGRICULTURE, AND THE TRANSACTIONS OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND. (October Number).

Published on the 1st January, 1st March, 1st July, and 1st October.

William Blackwood and Sons, Edinburgh and London.

This present number contains several useful and interesting papers. One on Maritime Pisciculture is quite new, and deserves particular attention, as bearing on a subject little understood, but involving an abundant supply of wholesome and delicious food. A letter on "Steam Culture," which is an exposition of Halkett's System of Guide-way Steam Agriculture, will be found of importance to landowners who are desirous of making the most of their property. Two papers of "Notes;" the first on the Warwick Meeting of the Royal Agricultural Society of England, the second on the Agriculture of the Netherlands, &c., by R. S. Burn, will be found interesting. A paper by R. Russell, F.R.S.E., on the Absorbing Powers of Soils, &c., contains valuable information, as does also one by H. Tanner on "The Manure of our Farms," in the Transactions. The character of this periodical is fully sustained by this number, both in a scientific and a practical point of view, and it will be read with interest and advantage by those with whom the progress of agriculture is an object of national or a subject of individual importance.

BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

A meeting of the Council was held at Taunton on Saturday, Oct. 29. Present: J. Silifant, Esq., in the chair; Messrs. T. Acland, Drewe, Daw, Moysey, Jonathan Gray, John Gray, Pitman, C. Gordon, Pitts, Hooper, Archer, Langdon, Knollys, T. Newman, Badcock, Danger, J. Hancock, Farrant, G. Harbin, Hussey, Wippell, Pool, Captain Tanner Davy, and Captain Adair.

The minutes of the last meeting and various communications were read; among the latter a letter from the Mayor of Truro, inviting the Society to hold its meeting in the town of Truro in 1861, stating that a public meeting had been held at Truro, at which it was unanimously resolved, "That this meeting, believing the exhibitions of the Bath and West of England Society to have rendered the most important services to agriculture in all its branches by affording ample opportunity for the full trial and consideration of all recent improvements, is anxious that Cornwall should avail itself of the earliest opportunity of participating in those advantages."

Mr. Archer explained that the county of Cornwall had taken up the matter warmly, that in round numbers £1,200 had already been collected, but the local committee expected to raise £2,000. £700 of this is already subscribed by the inhabitants of Truro. The Royal Cornwall Agricultural Society have voted £150 in addition—the remainder is made up by private subscriptions. Mr. Whitley is appointed Secretary to the Local Committee.

After some discussion on the motion of Mr. Daw, seconded by Captain J. T. Davy, it was resolved "That the meeting of this Society be held at Truro in the year 1861, provided the deputation of this Society, who will visit Truro at an early period, make a report satisfactory to the next meeting of this Council;" and "That a letter be written to the Mayor of Truro, transmitting this resolution, and thanking him for his courteous application," and informing him that a deputation, consisting of the following gentlemen, will visit Truro on the 16th or 17th of November:—

Messrs. Silifant, Acland, John Gray, Jonathan Gray, Gillett, Pitman, Poole, Gordon, Walrond, Newman, Neville Grenville, Langdon, Badcock, R. Smith, Widdicomb, Harbin, Moysey, Archer, Knollys, and Captain J. T. Davy.

It was resolved, "That the Secretary communicate with the Mayor of Truro, enquiring whether the 16th or 17th of November would be the more convenient day for the deputation to visit the sites for the proposed meeting in 1861.

Lord Falmouth was elected a member of the Society.

DEATH OF MASTER BUTTERFLY.—We regret to state that the celebrated shorthorn bull, Master Butterfly, which it was intended should have been exhibited at the show at M'Caw's Bazaar, on Thursday, died on the road to Melbourne, on Tuesday last. It will be remembered that this splendid animal was imported to this country in 1856, having been purchased by his late spirited owner at Chelmsford, Essex, in the show-yard of the Royal Agricultural Society, from his breeder and then owner, Colonel Towneley, of Towneley Park, Lancashire. Master Butterfly had, in that year, made a clean sweep of the first prizes at every show at which he had been exhibited in the United Kingdom, and also at the Paris Universal Exhibition, and besides was awarded the first prize as a two-year-old at the Chelmsford show. The price received for him by Colonel Towneley was 1,200 guineas, the largest sum on record as ever having been given for a bull of any breed.—*Bell's Life in Victoria.*—[A portrait of Master Butterfly appeared in "The Farmer's Magazine" for April, 1856, four months previous to his sale at Chelmsford, and on the strength of his having been the first prize of his class at both Lincoln and Carlisle. He was by Frederick, out of the famous Butterfly by Jeweller. It will be remembered that at the Warwick meeting this year the Australians, through Mr. Robert Smith, offered the same price of twelve hundred guineas for an own brother to Master Butterfly. The Colonel's representative, however, asked and held ont for two thousand.—Ed. F.M.]

THE ALMANACS FOR 1860.

Johnson and Shaw's Farmers' Almanac and Calendar. Edited by Cuthbert W. Johnson. Ridgway, 169, Piccadilly.

Morton's New Farmers' Almanack. Edited by John C. Morton. Blackie & Son, Warwick-square.

Thorley's Farmers' Almanack. Edited by W. Burness. 77, Newgate-street.

The Weather Almanac. Edited by Orlando Whistlecraft, Burton, Ipswich.

Peat's Farmers' Diary and Account Book. Edited by David Peat. Thirsk.

The Illustrated Annual Register of Rural Affairs. Luther Tucker and Son, Albany, U.S.

The gentleman who, in one of Coleman's comedies, refers in his song to the peculiar aptitude his father evinced in compiling an almanac, must by this have surely regretted that he had not himself followed so profitable a profession. If we only take the number of these annuals now issued, the endless variety of class readers they are addressed to, and the circulation they enjoy, nothing would promise to pay better. Of course a considerable proportion of any such advantage is arrived at by rather an indirect means. One calendar will advise you not only as to the day of the week or month, but even go on to say where you may obtain a good pair of cheap trousers. Another will introduce itself perfumed like a milliner, and imbuing every day in the twelve months, be it either whole holiday or black Monday, with couleur de rose, and bouquet à la Jockey Club. A third, taking a far more sombre view of things, pathetically associates the fleeting of another year with the economic rates at which funerals can be performed. A fourth, on the contrary, encourages us to live on, disinterestedly recommending not only what we should eat ourselves, but what even to give to our horses and cattle; while a fifth has a wondrous hair-oil to rub in, a gallon of whiskey to drink, a prime cigar to smoke, or some other as efficacious a plan for putting old Time back a notch or two instead of on. In fact, it is rather a difficult matter to define where the information of an almanac ends and the advertisement begins—that is always excepting our old acquaintance, Johnson and Shaw's Farmers' Calendar. The peculiar character, indeed, of this almanac is its clear division into two parts, entirely independent of each other. In the first you have all the data and detail of such a guide, admirably adapted to agricultural purposes; and in the next an almost complete catalogue of everything the farmer may require in the prosecution of his business. Never was an advertisement sheet so judiciously arranged; and never would such a means seem to be so serviceable to either buyer or seller. It is not every body that cares much for this kind of reading; but in an every-day book, like the almanac, this second division of the work reaches to a far higher standard than that of the mere puffing of wares or persons. The part opens, for instance, under the authority of the Royal Agricultural Society, the Smithfield Club, and the Central Club, each with a page of prospectus. And then come in due order all the great implement houses, with all they are famous for. Few, however, of our readers will ask us to dwell on the merits of *The Farmers' Almanac*, distinguished as it now must be from a younger contemporary, *The New Farmers' Almanac.* The latter is necessarily very much on the same plan as the original, although of course not as yet with its weight or influence. Either culls with care from the discussions of the past year, as something of a guide for the next. Each is alike diligent in reminding us when wheat-sowing is to be finished, turnip-hoeing to be attended to, and manure to be applied. The proceedings of the several societies and clubs are in turn referred to, and Johnson and Shaw in particular contains a long list of Agricultural Associations and Farmers' Clubs, not a tithe of which, we fear, are at present in actual existence. These need very strict revision. Mr. Morton attempts little in this way, beyond availing himself of our list of Meetings to Come.

Another new annual offering trenches very closely on the advertisement direct. Of course Thorley's Almanac abounds in directions for the management of stock, and when the famous food may be advantageously administered. This, like the chorus to the drinking catch, would appear to be

> Every day in the week, I think,
> Why should I have but one day?

Still the main object is very nicely disguised, and Mr. Burness has contrived to weave in a good deal of useful matter with the more important points of what is to be done with a horse when he is out of sorts; or how a sheep should be prepared for market. A very lively bull calf and a highly ornamented horned ram figure amongst the signs of the zodiac, in fitting illustration of the general purposes of Mr. Thorley's text word. They remind one strongly of those well-fed animals we meet with so continually at railway stations and on way-side walls.

But a man of business wants even something more than an almanack that can tell him how to clean a crop, or feed a beast, or buy an implement. He must have a work of his own; and Peat's Diary and Account Book is becoming deservedly established. The simple system of its entry is excellent, while its few divisions really seem to be all that are required. No farmer need be afraid to encounter it, and almost every one might be the better for using it. The Diary this year comes out under the countenance of Lord Carlisle; a dedication very handsomely and properly permitted — that is, if dedications did ever mean anything at all, a point which the world is coming more and more to question.

We have received only just in time to add to our list the Weather Almanac, and Tucker's American Register. Mr. Whistlecraft, the compiler of the former, has already a weather-wise reputation in Suffolk, that he is now trying to increase by vaticination in the manner of the once-illustrious Mr. Murphy; while the American work is carefully edited, nicely printed, and profusely ornamented with wood engravings. At "twenty-five cents" it should be both a credit and a profit to its producers.

THE WINTERING OF YOUNG SHEEP.

The defective quality of the Swedish turnip crop has of late years induced many growers to substitute mangolds, kohl rabi, cabbage, &c., &c.; common turnips in every variety, and coleseed (rapeseed) yet occupy a large breadth as a fallow crop; but complaints are made of their quality as healthy feeding crops. I should be the last man to speak in disparagement of artificial manures, or hint a doubt as to their healthy applicability in producing those beautiful and bulky crops everywhere to be seen, and wholly owing to their influence upon the soil and plant; but there is something unaccountable in it after all. Plain practical men like myself readily discern that their young sheep do not thrive so fast and so well on crops thus artificially raised as upon those raised from foldyard dung. It is the same with turnips as with coleseed. I should like to see an analysis of these crops, to show us the chemical properties discovered in each variety, grown under both orders of culture. It is manifest that the bulb of the turnip and the plant of the coleseed do imbibe some quality from the soil or manure, in the one case differing from the other. It is either something deleterious to the young stock, or the absence of nutrition, or other of those fattening or growing qualities which we look for in such crops, gluten, starch, phosphates, &c., &c.

Now, in these modern times we require to be informed upon these points, in order that our artificial food may be so applied as to counteract any injurious tendency inherent in these crops. In fact, it is absolutely necessary. There can be no doubt upon the point. Young sheep fed upon these artificially produced crops require a different treatment to what would be requisite if fed from crops produced by well fermented farm-yard manure. This is my reason for once more taking up this oft-repeated subject.

In cases of this kind we must judge from analogy. The chemical analysis is not before us. From what cause our young sheep suffer we do not know; but we do know how they are most injuriously affected. They do not grow, or at most very slowly. Why is this? The chemist would tell us, "Your food is deficient in those elements which constitute bone; you want phosphates, chalk, starch, lime, &c." Well, then, give food containing these ingredients. Bean-meal, pea-meal, oats, &c., cut chaff from barley, oats, or wheat straw; all the pea and bean straw they can eat. A moderate feed of linseed cake will aid much in any case; but they don't thrive "just where they are for weeks together." The chemist again tells us, you require gluten, sugar, starch, albumen, &c., &c.; give in addition to the above, meadow hay, clover hay, and straw in abundance, you cannot do better; but do it, or your young flock will soon go wrong. The quantities to be given must be in accordance with good judgment. For lambs or hoggetts from half-pint to a pint measure of bean or pea-meal is a fair allowance daily; three-quarters of a pint of oats is a good allowance daily, and half-a-pound of the best linseed cake is a good feed early in the season, to be increased to one pound as spring approaches. Cut chaff *ad libitum*; straw ditto. Bean and pea-straw contains a great proportion of lime. This, if possible, should be allowed liberally. By close attention to these suggestions much loss will be avoided, and a great good will be obtained. It is so very provoking to see a beautiful lot of well-reared lambs gradually dwindling or "wasting away," and many, no doubt, dying from the unhealthy food they are feeding upon, although to all appearance very suitable. It ought to arrest attention, and should stimulate breeders to renewed care and exertion to provide against these no uncommon contingencies. The present season has added much to our difficulties. The severe frosts have greatly injured every kind of vegetable food, and unless artificial remedies and preventives are resorted to, much loss of young sheep stock must ensue. "To be forewarned is to be forearmed."

Young sheep should be placed at winter-keeping early in the season. The best of the grass and clover eddishes being sufficiently depastured by these young sheep (*i. e.*, weaned lambs), they should be turned over to the ewe flock at the close of September, and the lambs turned to their winter-keeping. On no account should this be deferred later than the middle of October. It is true they will at first be very chary in taking to this change of keeping, but the longer it is deferred the later are they in getting habituated to it, and if very cold rains or severe frosts and snows set in, they suffer greatly; but if they have laid well hold of their keeping, and fill themselves satisfactorily, it is not a little stormy or unfavourable weather that will do them much harm. If they fill themselves well with good turnips or coleseed, and with these receive good rations of cake or corn, they will defy the storm: the food sustains their warmth. When first put upon this winter keeping it is very desirable to take them off occasionally, and put them into a "fall-back" (*i. e.*, field of stubbles or grass, or, what is better, old over-eaten eddish) for a day or two. They then empty themselves of the rich "colicky" food, and the return to a good stomachful of old grass, or the weeds, &c., of the stubble field, does them essential service. Prior to their leaving the eddishes in the first instance, they should be taught to eat cake and corn, as this is a mainstay to them on their great change from grass and clover to "cole and turnips." The sheep will generally do best on coleseed by having a large range; indeed it is customary to stock the whole field. This is, however, a very wasteful expenditure of food. The better practice is, to give them first a moderate-sized fold, sufficient for their service, without trampling it down speedily: afterwards, as it becomes eaten tolerably close, let them have an ample daily allowance, but no more. In consuming the common turnip crop a daily supply is also best; and it is a good practice to keep a good allowance of sliced turnips in troughs, to which they can resort at pleasure. In consuming the Swedish turnip crop all should be sliced; and the cleaner they are made before slicing the better. The shepherd should be continually with them, to administer the food at regular times. The cake and the corn should be given the first thing in the morning, and the last at night. It is a warm soporific at night, and a dry astringent in the morning. The allowance of straw should be great; and if stacked in the field as a shelter, all the better. As they increase in size their rations of corn or cake should also be increased gradually. Dry lairage is of most essential importance to their well-being; and should this be found an impossibility in the turnip field, they must at once be removed to some dry locality, and their food be brought to them. It is far better to do this immediately that it is thus ascertained, rather than wait till cold and inflammatory symptoms unmistakably appear. I have occasionally taken mine into fold-yards for a day or two in the most inclement of seasons. Some individual animal or other has derived benefit from it.

Judgment, good judgment is the main qualification in a flockmaster: he will find abundant scope for it in every winter. If the sheep do not thrive satisfactorily, he must of necessity resort to the best artificial aid he can command. It is absolute folly not to keep them well. On the contrary, in a fine beautiful season like the past week they may progress too fast. He must now be doubly watchful. If they become lazy and sluggish a little exercise will do them good—a slight walk only. Should symptoms of repletion occur, he must resort to bleeding at the nostrils and the administration of diuretic drinks and a change of food.

THE FAILURE OF THE CENTAL.

Some time since, the attention of our readers was directed to the question of an uniformity of weights and measures, which, it was expected, would have occupied the deliberations of Parliament in the then approaching session. But the struggles between the "ins" and the "outs" were so strong, and absorbed in their consequences so large a portion of time, that it was impossible so comparatively trifling an affair could be attended to, when matters of far greater moment were, from sheer necessity, held in abeyance. Now, however, when we trust there is the appearance of a more settled session, and we hope less of party agitation, it is probable time may be found for introducing a measure for settling this vexed question in a satisfactory manner, and a universal standard of weights and measures agreed on for the whole United Kingdom.

Since the subject was last agitated in this journal, the committee of the corn trade in Liverpool (rather rashly, we think) took the matter into their own hands, and established the cental on the corn market of that city, in the sale of all kinds of grain, flour, and seeds. By these means—as they could not enforce the system beyond their own precincts, and it was not adopted by any other market—the Liverpool corn-dealers found themselves completely isolated, being compelled by their own by-law to adhere to the cental, whilst they were equally compelled to purchase *anyhow* at other places, according to the local customs and usages of the market. Whether the Liverpool merchants conceived that their weight in the kingdom was great enough to ensure the enforcement of their example, or expected that the excellent working of the cental in their market would convince the gainsayers, and recommend the system to the whole trade of the kingdom, we cannot tell. Certain it is that they have been disappointed; and after a year's perseverance in the endurance of inextricable confusion, have been compelled to abandon the plan, and resort to the old imperial bushel, or that of 70lbs., as before.[*]

A letter has been sent us from a member of the Liverpool Corn Association, announcing the fact of failure of the cental, and proposing the universal sale of corn, nominally by the imperial bushel, but really by weight, the standard being "60lbs. for wheat, 50lbs. for barley, and 40lbs. for oats; other grain and seeds to be regulated with equitable care. By these means the *name* of the imperial quarter will be preserved, known as the British standard in the sale of grain, as also for freight, all over the world." We have before stated that, so far as the corn trade alone is concerned, it matters little whether the plan to be adopted is that of the cental or of the imperial bushel. There are advocates for both systems; but we believe, if it were put to the vote, the latter would be carried by a large and overwhelming majority. On the other hand, however, the advocates of the cental look forward to the time when the decimal system will force itself upon the legislature, which the return to Europe of Sir John Bowring, the most strenuous promoter of that system, will cause to be agitated. Assuredly the endeavour will not be confined to the coinage alone, but will, by a comprehensive measure, be made to embrace the entire mode of trade and commerce of the United Kingdom, with a view of abolishing all the old weights and measures, and enforcing the desired uniformity. It is a question, therefore, whether it is judicious, with such a prospect before us, to agitate an isolated portion of the trade for procuring a measure which may be abrogated when the whole system of commercial and monetary transactions comes to occupy the attention of the legislature. The only argument in favour of the present Liverpool plan is that the corn trade itself is an isolated or distinct branch of commerce, and that its settlement would not interfere with arrangements for applying the cental to every other branch. Certainly, if this were not the case, the monstrous discrepancies and absurdities in the traffic of corn would have materially affected our prosperity. But notwithstanding we have a different weight or measure in almost every market for the sale of corn, other trades and markets having a regular and uniform standard have gone on prospering, whilst a corn-merchant is compelled to serve an apprenticeship in every market he frequents before he is able to cope with the local anomalies he has to encounter.

It is to be feared that the hasty attempt of the Liverpool merchants to establish the cental, without reference to the other markets of the kingdom, will do more than disappoint themselves; and that the unsuccessful experiment will endanger the speedy settlement of the question, by affording the opponents of a change a vantage ground they did not previously possess—an instance of failure. This, however, ought not to be the case; for although the Liverpool corn-merchants have failed to establish the principle of the cental on their own market, it by no means follows that a change is not needed, or that the system adopted was not a good one. On the contrary, the necessity of the change is as apparent as ever; still more that of the most stringent measures for enforcing whatever law may be adopted by the legislature, and for punishing every infraction, so as to compel that uniformity which is so desirable throughout the United Kingdom, but which is at present set at defiance by the upholders of the ancient customs and usages.

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[*] It ought to be stated that this refers to the Committee of the Corn Association as an institution only, and not to individual merchants; one of the most influential of whom, Messrs. Ridyard and Co., still adheres to the cental in the purchase and sale of wheat only.

In conclusion, we would repeat what we said on this subject last year, and strongly recommend the leaders of the agricultural interest to direct their earnest and immediate attention to this subject. In the preparation of a bill, and its introduction into the House of Commons, they are sure to have the sanction and support of the county members, which, in a matter not involving any political principle, would carry the support of the Government. As respects the corn trade, we believe the great body of those concerned see the necessity of, and are prepared for, a change; and the only difference of opinion lies between the advocates for the imperial bushel and those for a standard of weight. It is probable that the former exceed the latter; but we would advise them to reflect upon the possibility of the adoption of the decimal system, in which case the corn trade, as well as every other, would be included in the change, and the imperial bushel consequently be done away with. The first step, however, should be another Committee to hear evidence on either side, and to report in accordance with what would appear more sensible and *feasible.*

CHESTER ROOT SHOW.

For some long time past, Mr. Chivas had felt that an exhibition of farm roots would be productive of benefit to the Cheshire farmers, and accordingly he made arrangements for carrying out that idea. He advertised his intention, and requested exhibiters to contribute specimens of their root crops, to the best of which prizes would be awarded, supplied by the private purse of Mr. Chivas. In answer to such invitation, a number of Cheshire farmers sent roots, and even from Surrey specimens were sent; but the interest evinced only succeeded in making up 85 entries. These were neatly arranged in the Corn Exchange, and on Wednesday and Thursday the public were admitted to the show. Many of the specimens were particularly fine, especially of mangold wurzel, and in turnips some rare produce was shown. The attendance of visitors was very small, scarcely any interest being awakened among any but the actual exhibitors themselves. Mr. Chivas was confined to his home by illness, but the arrangements were efficiently carried out by Mr. Weaver. The judges were Mr. Wm. Hassell, Bubney, Whitchurch, and Mr. Henry Maddock, Sealand, Chester, who awarded the following prizes:—Class 1, swedish turnips: For the best six roots, £2, John Parry, Dunham-o'-the-Hill; second best, £1, Sir R. W. Bulkeley, Baron Hill, Beaumaris; commended, Joseph Parry, Westwood, Kelsall. Class 2, common turnips: For the best six roots, £1, Thomas Atherton, Speke, Lancashire; second best, 10s., Henry Mowbray, New Hall, Neston; highly commended, George Mangles, Givendale, Ripon; commended, William Palin, Stapleford Hall, Tarvin. Class 3, orange jelly turnips: For the best six roots, £1, W. Beecroft, Upton, Chester; highly commended, Marquis of Cholmondeley. Class 4, long wurtzel: For the best six roots, £2, James Ball, Norley, Frodsham; second best, £1, Hon. T. P. Lloyd, Pengwern, Flintshire; commended, W. Roberts, Eyton, Denbighshire. Class 5, globe wurtzel: For the best six roots, £2, Hon. T. P. Lloyd, Pengwern, Flintshire; second best, £1, J. H. Broadbent, Sealand, Chester; commended, Joseph Parry, Westwood, Kelsall. Class 6, carrots: For the best six roots, £1, St. John Charlton, Apley Castle, Shropshire; second best, 10s., Col. the Hon. Thomas Cholmondeley, Abbot's Moss Hall, Cheshire; commended, ditto. Class 7, potatoes: For the best six roots, £1, George Mangles, Givendale, Ripon, Yorkshire; second best, 10s, James Collinge, jun., Kinnerton Lodge, Flintshire; highly commended, James Collinge, jun., Kinnerton Lodge, Flintshire.—*Chester Chronicle.*

MOPS AND STATUTE FAIRS.

An influential meeting, convened by Lord Lyttleton, Lord-Lieutenant of the county, in compliance with a numerously-signed requisition from the clergy, gentry, agriculturists, and other inhabitants of Worcestershire, was on Saturday, Nov. 12th, held at the Shire Hall, Worcestershire, to adopt measures for the suppression of mops and statute fairs, and the substitution of a better mode of hiring servants. Lord LYTTLETON occupied the chair.

The noble CHAIRMAN explained the object of the meeting, and said that he was strongly in favour of the establishment of a society, with a working committee of management, whose duty it should be actively to promote this object, to manage details which were known to be difficult, and carefully to watch the working of the registration offices.

Sir JOHN PAKINGTON moved the first resolution, to the effect that the present system of mops was not conducive to the interests of masters or servants, and that an alteration or amendment of the practice was most desirable, expressing his conviction that statutes or mops, without answering the useful purposes for which they were intended, brought about a considerable degree of evil and mischief. The abolition of statutes, he believed, would not be injurious to agriculturists; they were a clumsy and inconvenient contrivance to effect what might be much better done without them; and he could not disbelieve all that was told him from every quarter with reference to the very demoralising tendency of these statutes. Indeed, it was a well-known fact that bad and infamous characters were in the habit of attending them, to impose on the employers of labour, and to inflict great moral injury on those who came to be hired. Only two arguments in their favour had been alleged; first, that there was a necessity for continuing such gatherings to provide labour for those who were in search of it. But surely it was possible to devise some other mode, equally good, but free from the evils which attended statutes. The second was that it was hard to deprive the labouring classes of their holiday. Now, the promoters of the present movement were as anxious as any could be not only to preserve, but to increase the innocent recreation of the labourer. If holidays were desirable, as no doubt they were, other arrangements might be made to afford them that enjoyment in an innocent manner, free from the great and manifest evils of statutes. The question lay in a nutshell; and he left it to those who followed him to show that by some system of registration the object of the employers of labour might be attained on the one hand, and on the other that great benefit might be conferred on the peasantry of the district.—Mr. B. HALL seconded the resolution, which, as all the others, was unanimously carried.

Mr. CURTLER moved a resolution for the establishment of registration offices in Worcester, and such market towns as were convenient, and entered at some length into the practical evils of mops.—Mr. J. WALKER seconded the motion.

Mr. GUEST proposed the establishment of a Worcestershire Servants' Registration Society, which was seconded by Mr. T. TRINDER; and the other resolutions for the appointment of a committee, &c., were moved and seconded by the Rev. J. PEARSON, Mr. J. LETT, SIR E. LECHMERE, and the Hon. F. LYGON. After a vote of thanks to the noble Chairman, the business terminated.

A HUNTSMAN'S VIEWS ON DRAINING.—"Will Danby is quite a key to Yorkshire hunting history; but tiles have, of latter years, become his thorn in the flesh. 'This draining, as he emphatically observed to us, when we took counsel with him near the Hurworth kennels, 'is just the ruin of scent; I wish they'd be done with it; when I was a boy, we could hunt from morning till night.' He was born near Hornby Castle; and the ruling passion with him was strongly fostered at fourteen, when one of the farmhouses, included in his father's lease, was converted by the Duke of Leeds into a kennel for his hounds. This was the crisis of his fate, and henceforward he devoted his attention much more to helping the feeder to walk the hounds about, than to grounding himself in the elements of agriculture. His expressed views on drainage would, in fact, have militated so strongly against his advancement, that it was well that he established himself in the good graces of Kit Scaife the huntsman, and found a more genial outlet for his energies."—"*Silk and Scarlet;*" *by* "*The Druid.*"

CALENDAR OF AGRICULTURE.

Plough stubbles and leys for Lent crops; in fresh weather repair old fences and make new ones; continue the cutting of drains so long as the weather allows; mend roads, and cart up earths for making composts. Collect for manure, in some shape or form, all earthy and vegetable substances that can be got.

Flood meadows, and lay dry occasionally.

Cut underwoods, and fill up vacancies by planting and layering; plant all kinds of forest trees, especially ash and oak; keep plantation fences in good repair to prevent trespassing, a very sure mark of slovenly management. Raise turnips, and store the bulbs in dry fresh weather; give the tops to young cattle in the yards, and to the store sheep in the fields.

Early lambs will be dropped during this month in some localities. Feed the ewes very amply, and provide good shelter.

During frosty weather thrash grains very frequently, and litter the yards very often. Collect earths for the compost heaps, and carry lime to be mixed with the earths. Cart stones to the places required for draining: carry fuel, timber, and faggots.

This being the first month of winter, the proper arrangements must be made for a systematic management in every department of the winter operations. The live stock require a vigilant and unremitting attention in being amply and regularly fed, and in having a dry and comfortable bed in the yards and sheds. Keep the steamer in constant work, and give cooked food daily to the work-horses, cows, pigs, and poultry. Give it fresh, and without any sourness. Give to the cattle the turnips from the store pits; but in fresh weather bring the roots daily from the fields. The drains and culverts must be all in good going order, to conduct the urinary liquids to the tank. The cattle in the yards should eat under cover, especially in high cold latitudes. This purpose may be easily effected, by having the whole area of a farmery roofed over, like the terminus of a railway. This subject has not yet received the due consideration.

The crops of grain, the animals, and all moveable articles, being the property of the farmer, should be insured at his cost, and the buildings at the expense of the proprietors. We beg to direct the attention of our readers to the Farmer's Insurance Office, 3, Norfolk Street, Strand, London, where all kinds of insurance are effected on the most moderate terms, including the damage from hailstorms. This office does much business, and supports a high reputation of integrity and stability. The neglect of yearly insurances commits an injustice to farmers and proprietors, and to the public at large.

CALENDAR OF GARDENING.

KITCHEN GARDEN.

Frost may set in early, and therefore every means of defence for plants in frames, under glasses, and in warm borders, such as matting, littering, straw and fern, ought to be at hand. In this way, late-sown radishes are preserved under straw, which however should be raked off in open sunny weather. Little can be added to the directions for November. All is carting out, and if the weather be open, there is every probability that it will be wet; and then to trample in, and work ground saturated with water, is only to do mischief.

Sea-Kale: Pot and excite a second set of plants. Brick pits and darkened frames, with good linings, would be a great convenience, and prevent much litter.

Asparagus is easily forced upon deep beds of leaves raked from woods and parks, avoiding those of laurels and evergreens generally. The plants should be prepared in proper beds for the express purpose, and selected from the best two or three year old stock. Brick pits are the best erections; but good frames set upon leaves with warm linings will do well.

FLOWER GARDEN.

Cover the ground with half-decayed leaves, or lay cakes of moss among the shrubs, keeping them in order by flint stones; and in the event of snow falling, lose no time in brushing it off the evergreens before the sun shines hot upon them: alternate meltings and freezings ruin foliage.

DIXON'S LAW OF THE FARM.—Second Edition, 18s. Stevens and Norton, 26, Bell Yard, Lincoln's Inn. That there is a large number to whom this book will be welcome is plain from the constant questions of the law relating to agricultural circumstances which are every week addressed to the agricultural papers. The volume contains an extended notice of the agricultural customs of the English and Welsh counties, forms of agreements for all manner of sales and purchase of any agricultural interest, and definitions of all kinds of property of either landowners or tenants. Its chapters are on Interests in Land, Easements, Trees and Fences, Dangerous Animals, Water, Servants, Conveyance of Cattle, Distress, Husbandry Covenants, Trespass and Game, Tithes, Landlord and Tenant, Contracts and Sales, Horses and Cattle, and various appendices. It is a volume of 600 pages densely packed—with a capital index to its contents—full of illustrative cases, so cited and epitomised as to interest the reader; and of such number and variety as to furnish a parallel to almost every possible case of legal difficulty of which a solution is desired. It ought to be in the hands of all business men in the agricultural world.—*Gardener's Chronicle and Agricultural Gazette.*

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

From nearly all parts of the country very satisfactory accounts have reached us in reference to the progress of out-door farm labours. Ploughing and sowing upon both light and heavy soils have received very little interruption, and it is pretty generally understood that those important operations are now seasonably forward. Although the price of wheat still rules low, the usual course of cropping has been carried out, and our impression is that quite as much land will be sown with wheat this season as in the general run of years. In all parts of the kingdom much anxiety continues to be manifested on the subject of the probable range in the value of wheat between this and the spring. At one period of the past month there was decidedly more firmness in the trade, and prices advanced fully 2s. per qr. That improvement, however, has not been supported, and the trade has relapsed into its former dull state. Considering that there are very few influences at work calculated to have much depression in the demand—because we must bear in mind that an enormous consumption of bread is now going on—and that scarcely any foreign flour, either French or American, is on offer, it is somewhat surprising that wheat should have for so long a period continued at its present low figure, more especially as some kinds of spring corn are selling readily, at comparatively high rates. That wheat has seen its lowest range in value, must, we think, be admitted by all who have watched the course of the trade; and that there is ample room for an upward movement in price, is evident from the extent of the demand for flour. The heavy shipments from the South of Russia, and the extensive transactions in grain off coast from the westward, have greatly interfered with the country demand at Mark Lane and at the large outports, and, if our reports be correct, there is still a large quantity of Russian wheat on passage from the Black Sea. With the prospect of heavy supplies from the westward, extensive speculative purchases of foreign wheat in warehouse can scarcely be expected; besides, we must not forget that the stocks of grain in stack in this country are seasonably large, though not of such fine quality as in some former years. Looking at the trade in a general point of view, however, our impression is that fine and useful wheats will become dearer shortly after the close of the year. Very little really fine barley has been on offer of late, and for which very high prices have been paid. Grinding and distilling sorts, owing to extensive importations from the Continent, and to steady arrivals from Scotland—in which country the new crop has turned out very abundant—have been much less active, and the quotations have had a drooping tendency. Most other descriptions of spring corn have sold at full prices, and the demand has continued tolerably active.

Some difference of opinion still continues to prevail in various quarters, in reference to the stocks of potatoes now on hand. Some persons have assumed that not only is the supply small, but that the bulk of it is much diseased. We, however, entertain a different opinion. It can hardly be assumed that there are more potatoes on hand than usual; but we firmly believe that it will prove equal to our wants during the remainder of the season. Under the impression that we shall have high prices, the growers, both in Holland and Belgium, are making preparations to ship largely; but we think that the surplus produce on the Continent is not a large one. At present, home-grown potatoes are selling in our markets, at from 70s. to 120s. per ton.

The low value of money in the discount market, and the general activity in the trade, have produced a steady effect upon the colonial wool sales now in progress. Up to the present time the whole of the parcels offered have changed hands at an advance in the quotations, when compared with the previous series, of from ½d. to fully 1d. per lb. At the corresponding sales last year the opening advance in prices was 1d. to 2d. per lb. In English wool, both in London and the manufacturing districts, only a limited business has been transacted; yet no material change has taken place in prices. The quantities on offer and in farmers' hands are represented as very large.

Although the duty on hops has been declared at a high figure—though somewhat lower than was at one time anticipated—prices have kept up remarkably well. Weald of Kent and Sussex pockets have advanced from 2s. to 4s. per cwt., and a fair average business has been passing in other kinds, at full quotations. The stocks on hand are large.

In Ireland and Scotland the grain trade has shown signs of improvement, but the amount of business doing in most articles of produce has not been to say extensive. The exports of wheat, barley, oats, &c., from Ireland have continued on a limited scale. Farm labours are represented as tolerably forward.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Notwitstanding that the Metropolitan, as well as most of the country markets, have continued to be well supplied with stock as to number, and that large supplies of meat have been on show in Newgate and Leadenhall from Scotland and various parts of England, the trade generally has ruled somewhat active since we last wrote, and prices have had an upward tendency. The great activity in the trade and commerce of the United Kingdom has no doubt had considerable influence upon the demand; but it is to be regretted that such enormous numbers of both beasts and sheep should have been disposed of in little better than a half-fat state. In most districts graziers have exhibited some anxiety to sell at present prices, which, in a comparative sense, are remunerative. Still we entertain great doubts whether much larger profits would not be realized by holding back a portion of the stock until it should become more suitable to first, or at all events second-class consumption. As far as we can judge—and past experience must be our guide to some extent—the graziers have very little to fear from foreign competition during the next three or four months. We shall possibly receive our usual amount of supply from Holland; but from Jutland no arrivals can be looked forward to: hence prices will continue to rule high. Indeed, we should not be surprised to see the value of mutton fully 4d. per 8lbs. higher than it now is. As the season is fast approaching during which prime animals will be forthcoming—and common report says that the forthcoming Christmas supplies will be of unusually fine quality—the price of beef can hardly rule much higher than at present.

The wonderful improvement in the general weight and condition of the sheep imported from Holland during the last two months is the subject of general remark. Very few Dutch sheep now arrive otherwise than in the best condition, and numbers of them lately disposed of—and which bear signs of crossing with our heavy breeds—have weighed from 15 to 16 stones each. The contrast between the Dutch and German sheep has now become remarkable. In the former, as we have just observed, the improvement is very great; but the latter have unquestionably fallen off, both in weight and quality. This will be evident when we state that some of the sheep shipped at Rotterdam have produced fully 70s., whilst those from Germany *via* Hamburgh have with difficulty sold at 15s. each! Upon the latter the charge for freight, commission, &c., is 2s. 6d.; so that the German grazier obtains a sum equal to only 12s. 6d. for each head sent to London!

Some very useful Herefords and Devons have been on offer; but the stock that has commanded the most money, from its great superiority, is that derived from crossing the Shorthorns with the Scots. Hitherto the system has been productive of the best results, and its extension to every county in the United Kingdom may naturally be anticipated.

Generally speaking, the health of the stock, both beasts and sheep, has continued good, very few losses have resulted from disease; and the supplies of winter-food are everywhere abundant.

Throughout the Continent, and even in Germany, the price of meat is represented as very high. Consumption, especially in France, appears to have rapidly increased. Both in Spain and Portugal stock is too high in price to admit of profitable shipments to this country. The arrivals of stock from Ireland have been in good condition, and this remark may be applied to both beasts and sheep, which, for the most part, have sold at high currencies.

The annual return shows the imports of foreign stock into London since last month:

Beasts	5,927	head.
Sheep	21,907	,,
Lambs	271	,,
Calves	997	,,
Pigs	159	,,
Total	29,261	,,

IMPORTS AT CORRESPONDING PERIODS.

Nov.	Beasts.	Sheep.	Calves.	Pigs.
1858	4,787	18 258	1,174	156
1857	4,409	12.839	2,687	136
1856	6,102	16,380	1,152	309
1855	7,367	17,094	1,127	454
1854	7,120	16,604	1,108	369
1853	7,390	22,565	1,629	919

The total supplies exhibited and disposed of in the Great Metropolitan Market were as under:

Beasts	26,492	head.
Cows	522	,,
Sheep	120,840	,,
Calves	1,299	,,
Pigs	2,800	,,

COMPARISON OF SUPPLIES.

Nov.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1858	24 856	534	114,643	1,437	2,970
1857	25,383	505	103,120	3,002	3,057
1856	24,711	457	97,460	1,585	3.535
1855	25,444	515	105,750	2,096	3,415
1854	23,442	512	121,031	1,848	2,726
1853	25,760	562	127,150	2,615	2,790

Included in the return for last month are 13,380 shorthorns and crosses from Lincolnshire, Leicestershire, and Northamptonshire; 2,000 of various breeds from other parts of England; 894 Scots and crosses from Scotland; and 2,520 oxen and heifers from Scotland. Beef has sold at from 3s. to fully 5s.; mutton, 3s. 2d. to 5s. 2d., veal, 4s. to 5s. 4d.; and pork, 3s. 6d. to 5s. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Nov., 1856.					Nov., 1857.					Nov., 1858.				
	s.	d.		s.	d.	s.	d.		s.	d.	s.	d.		d.	d.
Beef, from	2	8	to	4	10	3	0	to	4	10	2	8	to	4	10
Mutton ..	3	2		5	2	3	0		5	4	2	8		5	0
Veal	3	8		5	4	3	10		5	4	3	4		5	0
Pork	3	6		5	4	4	0		5	2	2	10		4	2

The trade in Newgate and Leadenhall has continued steady, at full prices. Beef has sold at from 2s. 8d. to 4s. 4d.; mutton, 3s. 2d. to 4s. 6d.; veal, 3s. 8d. to 4s. 6d.; pork, 3s. 6d. to 5s. 2d. per 8lbs. by the carcase.

SUFFOLK.

Not only did the wetness of the weather frustrate many good intentions as to the prosecution of Autumnal cultivation in September, but the continued rainfall since that period has materially tended to check all outdoor farming operations. Wheat seeding has been greatly retarded. At the present time much wheat has yet to be drilled; and sowing generally will not be fully completed for a week or ten days. The whole process of ploughing, harrowing, and drilling has been unusually hard work for the horses upon the clay lands; and the harvesting the large breadths of mangold wurtzel, now annually grown, has been a most serious and laborious operation. The great weight of roots per acre, and the wet condition of the soil, have caused much injurious poaching or treading on the naturally stiff retentive lands, whilst the early frost in October, and the fear of its repetition, have operated to prevent delay for finer weather in securing this most valuable crop of roots. We never in any previous year have seen the crop so generally good. At the Framlingham Farmers' Club, one exhibiter (Mr. D. Smith, of Easton) grew upwards of 43 tons per acre of cleaned roots, exclusive of the leaves; whilst Mr. C. K. Cordy, of Trimly, who exhibited for one of the prizes at the Ipswich Farmers' Club, grew upwards of 42 tons per acre. The heaviest single root exhibited at Ipswich was 38lbs. In different cases the number of roots per acre have been counted, as well as the entire crop weighed, and it is clearly established that the heaviest crops were produced where the roots were of medium size, and reasonably thick in plant, and vice versâ. The weight per acre of the mangold wurtzel crop was nearly double that of the swede and common turnip crop, where weighed; and it consequently need be a matter of no surprise that the culture of the mangold is yearly greatly on the increase, to the partial supplanting the turnip and swede, the growth of which is yearly diminishing in acreage. In a few cases the mangold wurtzel was injured by the early frost, where pulled and exposed; but generally they are unharmed, thoroughly secured, and of excellent quality. Beasts have been bought for Winter grazing at prices slightly in favour of the buyer, but we hear of different cases of pleuro-pneumonia, and of some deaths from the disease. The loss of lambs has, in some instances, been, from some unknown cause, serious, as in other parts of the kingdom. We incline to the belief that it has been caused by too early turning upon the pastures, before the evaporation of the dew, when larvæ remained on the herbage, which larvæ afterwards lived in the stomach of the animal and sucked its very life-blood. Hundreds of worms have been discovered after death both in the œson and stomach of the lambs. Both the wheat and barley crops disappoint expectation in yield; and the barley proves to be as much damaged by the rains and the hot growing weather in harvest as the most desponding statement predicted. Much barley has been sold at from 16s. to 30s. per qr., whilst the best quality of unstained ungrown barley has commanded from 40s. to 50s. We are glad to observe a growing aversion to the malt tax, and an increased determination to press the unfairness of its continuance, with a fixed resolve either partially or in toto to blot it from the statute book of England. In an excellent address to the members of the Ipswich Farmers' club, the chairman of the evening, Sir Fitzroy Kelly, remarked: "I don't say, gentlemen, you can at once prevail on the legislature to take off some three or four millions of taxes, but I do believe that if those who possess the influence were to unite in entreating the attention of members of both Houses of the legislature to all that relates to the malt tax, you would succeed in making that among the first, which, if not taken off altogether, would be materially reduced whenever the whole subject shall come under the consideration of Parliament." We believe no other class than the agricultural interest would have tolerated so unfair an impost with such equanimity for so long a period; but we hope growing intelligence and the pressure of circumstances have combined to effect the downfall of such rampant injustice to the agricultural interest and the poorer classes of England.—Nov. 23.

ISLE OF ELY.

Our reports lately have all been more or less tinged with gloom; and, unhappily, we have no change of a favourable character, this month, to record; for, added to the very deficient crop of wheat lately and expensively harvested, and the unremunerative price realized for it in the public market, we have the serious injury sustained by our mangold and coleseed crops, in consequence of the unusually severe and destructive frosts which occurred towards the end of October. Our losses this year will be fearfully heavy, and will make many a man wish he were anything but a farmer. "Farmers are proverbially grumblers"—at least, so the world says. We question the justice of the assertion; but, whether it be true or no, they certainly this year are not grumbling without a cause, as any man gifted with common sense and common sagacity cannot fail to see. Our great hope is that, another year, Providence may graciously interpose, and bless the na tion with an abundant harvest, that producer and consumer may have occasion mutually to rejoice, and that "no complaining" may be heard "in our streets." But, to return to the damage resulting to both the mangold and coleseed crops from the severity of the frosts—From observation, we find that the mangolds put in a frozen state into the pits will not keep long, but should be immediately used. Those allowed to remain in the ground until thoroughly thawed, and until a free circulation of the sap was restored, promise to keep better, and appear less injured. The leaves also partly protected them, and prevented the frost exerting so serious an effect upon them. Those taken up, topped and tailed, and left exposed upon the ground, without any protection, must be half-spoiled, and will very soon begin to rot away. Our own, where taken up, were placed in rows, and well covered down with leaves; and when carted, those exposed through an imperfect covering were put to themselves for immediate use, some of them being slightly injured; whilst the others were put into pits for subsequent use. The coleseeds are even more seriously hurt than the mangolds. At least half the crop is absolutely destroyed, and very much of the fattening property taken from the other half. The crops sown for seed purposes, as well as those for feeding, are nearly all rendered almost worthless; and the lands must be resown with some other crop. The wheat-seeding, but in a few exceptional cases, is completed, and, so far as putting in the seed is concerned, satisfactorily. It, however, vegetates very slowly; and but few green fields are yet visible. It very seldom happens that the seed is so long in the ground before showing itself. The very early-sown wheats, such as were up before the October frosts, were seriously cut, and for a time looked anything but well, but have since become greatly improved. Horses are now busy breaking up stubble-lands for next year's fallow, and ploughing for oats, beans, and other spring crops. Thrashing is very forward, and the steam-engines are well employed. The price of meat continues good. Store cattle also sell well. The injury to the coleseed has made the trade for lean sheep slow; and prices are scarcely as good as they were. The corn trade has been slightly better, but to-day is dull again, and prices offered are 1s. to 2s. per qr. lower. Potatoes of good quality sell well, but are a light crop, and will yield a small return.—Your Fen Reporter.—Nov. 21.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BATTLE FAIR was one of the best we have had for many years. The attendance was very large, and the prices satisfactory.

BEDALE FORTNIGHTLY FAIR.—We had a good supply of all kinds of stock. The average quality of fat Beasts was low, so prime animals sold well. Beef 6s. 6d. to 7s. 6d. per stone, Mutton 5½d. to 7d. per lb.

BOSTON HORSE FAIR.—The show was smaller than last year, and the sale was slow. The few good cart colts and fillies exhibited fetched a good price, but indifferent ones could not be disposed of. Scarcely any nags showing.

BRECON FAIR.—There was a large number of cattle disposed of, some of which were particularly good, and realized a slight advance in price. There were few Welsh sheep shown, but those that were exhibited for sale were apparently very useful and healthy animals. In the pig market there was a goodly number of useful store and bacon pigs that changed owners; and a great many small ones were offered, but these did not appear to sell as well as the larger sizes.

CHESTER FAIR.—No fat stock, and very few milkers. Sheep were scarce, and beef and mutton remained at previous prices. Pigs sold readily at higher prices. The horse fair produced a very small show of anything good, for which few buyers were about.

CHESTERFIELD FAIR.—The number of cattle was far beyond the demand, sales extremely dull, and prices for all descriptions had a downward tendency. The chief business done was in fresh barren cows. New calvers, near hand incalvers, and meated beasts more ready sale, at nearly late prices. A great number of young and aged animals unsold. Very few good horses, and lower in value than of late. Very many Irish horses, but few found customers. Scarcely any sales in the sheep pens. Pigs very few, and sales at late prices.

CROWIE FAIR.—The show of cattle for this season of the year was very large, and a fair amount of business was transacted. The horses were in general of a meagre kind, and very few appeared to change hands. There was a very large quantity of pigs, and very high prices were asked, particularly for the smaller kind.

DOUNE LATTER FAIR.—North and West Highland met a ready sale, more particularly those that were within six months' keep of being fat, and all sold at prices equal to those obtained at recent markets. The rates of heifers were from £4 to £7 5s.—a shade lower than the prices got at the preceding market, and ten per cent. above the October Falkirk Tryst. Two-year-old stots £4 10s. to £7 5s.—last Doune Fair prices. This kind was short in numbers, and would be about fifteen per cent. above Falkirk October Tryst. Few fat cattle upon the ground; and what was exhibited brought equally good prices, according to quality, as at Hallow Fair. The spotted beasts, of all ages, would be at least two-and-a-half per cent. above recent markets; but it must be taken into consideration that the rise was in consequence of their superior condition, and the inferior kinds of this class would be somewhat similar to what has been recently obtained. The two-year-old wethers, with few exceptions, met equally good encouragement. The prices, according to condition, were fully higher than the corresponding prices of last year.

EAST WILTON FAIR.—Many sales were effected in the morning, and a brisk business done; but later on in the day trade became very heavy, and numbers left unsold. A good many cows were exhibited, and present calvers found ready buyers at very high rates, but spring calvers were not easily disposed of, and brought considerebly less money. For all descriptions of stock prices varied greatly, which makes any quotation of figures uncertain.

GUILDFORD FAIR.—The supply of all kinds was short, consequently the trade was very brisk, the attendance of buyers being good, so that an early clearance was effected. A moderate supply of fat stock also brought high prices. Milch cows, from country dairies, from 14 to 16 guineas; shorthorn ditto, from 20 to 21 guineas; steers in good order, from 11 to 14 guineas; stock heifers, from £8 to £9 10s.; in-calf ditto, from £12 10s. to £15; down cows, £7 to £11; fat cows and heifers, from £14 to £19. A very short supply. The sheep pens were very scantily supplied. Business brisk, at the following rates: Ewes, 35s. to 40s.; full-mouthed ewes, 30s. to 36s.; wethers in good condition, 47s. to 49s.; useful tegs, 32s. to 38s.; wether lambs, 25s. fo 28s.; ewe ditto, 23s. to 27s. per head. Fat mutton, 5s. 4d. to 5s. 8d. per stone. The horse fair produced some excellent colts on sale, from 28 to 40 guineas; ponies, £8 to £14; well-built cart horses, 23 to 36 guineas; cart colts, 25 to 35 guineas.

HALTWHISTLE FAIR.—Notwithstanding that it was the largest show of stock there has been here for several years, a comparatively small number was left unsold, and both sellers and buyers transacted their business in excellent spirits. There were 30 cartloads of pigs. Shots ready for feeding were in great demand, and sold at good prices. Small pigs not a good sale, and prices low.

HEMPTON FAIR.—The show of store cattle was large, and more than equal to the demand, consisting of Scots, shorthorns, Devons, and Irish. The general quality and condition of all breeds were but middling, and the inferior sorts commanded but little notice. The attendance of buyers being small, sales progressed slowly, those effected being in favour of the purchasers. Scots, 4s. to 4s. 6d.; a few choice lots, 5s.; shorthorns, 3s. 6d. to 4s. 6d.; Devons, 3s. 6d. to 4s. 6d.; and Irish, 3s. to 3s. 6d.; fresh in condition, 4s. per stone of 14 lbs., when fat.

LOUTH FAIR.—The show of beasts and horses was larger and the prices realized were tolerably good. The supply of fat stock was very limited, so that rather extreme rates had to be submitted to by needy buyers.

MARLBOROUGH FAIR was well supplied with sheep. There was a large attendance of dealers. In the morning the trade was dull, and lambs were from 1s. to 2s. a head lower. Ewes sold quite as well as at late fairs, and realized from 30s. to 45s. each; lambs, from 28s. to 41s. There was a good show of horses, and the best sold at from £35 to £45 each.

MONMOUTH FAIR.—A great quantity of all descriptions of stock sold well and realized excellent prices.

NEWPORT FAIR.—There was a tolerably active trade. Welsh beasts ranged fram £4 to £7; the shorthorns and home-breds from £8 to £12. Of horses there was a tolerable sprinkling, but they were a dull sale, and prices lower; Welsh ponies fetched from £5 to £8, and a drove of other sorts £6 to £9, and changed owners pretty freely.

RIPON FAIR.—A moderate show of cattle, but a heavy market for lean stock. Fat descriptions were scarce, and sold at 7s. to 7s. 6d. per stone. A small number of calving cows sold readily at good prices.

RUGBY FAIR.—First class carriage and hunting horses brought high rates; dray horses were rather scarce, but in good request at good prices; cart colts brought from £24 to £26 each. There were some prime fat beasts fit for the Christmas market, which obtained high rates, but the inferior quality sold about the same as at the last fair. Mutton was said to be lower than in London on Monday.

SOUTHALL, (Wednesday last.)—Trade was good for all prime qualities. Beef made from 2s. 6d. to 5s. 2d., Mutton 4s. to 5s. 4d.; Veal 4s. to 5s., Pork 3s. to 4s. 4d. per stone of 8lbs., sinking the offal.

TOWYN FAIR.—The supply was not so large as we have seen it, nor were the beasts in good condition. A tolerably good number changed hands, but the butchers were very cautious in purchasing, knowing that some of the farmers would be compelled to sell for want of fodder. Beef fetched 5½d. per lb., sinking the offal. Three-year-old bullocks fetched £7 15s. each, two-year-olds £5 10s., yearlings £4.

TRURO FAIR was well supplied with both beasts and sheep, which met with a ready sale. Amongst the former were a lot of very prime French bullocks, which sold freely at 65s. per cwt.; but the general price of fat beasts was about 60s. Lean cattle sold at from 42s. to 45s. per cwt., and sheep brought about 6½d. per lb. on the average. Nearly a clearance was effected.

YORK FAIR.—There was a large supply of animals in the beast market, but next day being fortnight market day the extent of business was limited, buyers and sellers deferring transactions, and the market was dull.

SALE OF SHORTHORNS AT SHETHIN.

Mr. Shepherd's annual sale of young Shorthorn bulls and heifers took place on Thursday, Nov. 3. The celebrity of Mr. Shepherd's stock—one of the very best in the district—drew together a large attendance, and the result at the sale must have been very satisfactory, as high prices were obtained. One object of great attraction was the very fine prize bull, "Cherry Duke Second," the victor both at Aberdeen and Edinburgh against all Scotland. After a very capital lunch, of which about 200 partook, the sale commenced, Mr. Mitchell, Mill of Fortrie, acting as auctioneer, and carrying on the business with much tact and spirit. The following is the sale list:—

BULLS.	Guineas.
Marmion, red with white, calved 5th Feb., 1858, by Bosquet—Mr. Deuchar, Australia, ...	48
Prince of Orange, red, calved 1st August, 1858, by Bosquet—Mr. Garland, Ardlethen, ...	56
Prince of Holyrood, roan, calved 1st Jan., 1849, by Bosquet—Mr. Garland, Ardlethen, ...	51
Fitzmaurice, red and white, calved 2nd Jan., 1859, by Bosquet—Mr. Chivas, Rora,..	30
Fitz Eustace, red, calved 2nd Jan., 1859, by Bosquet—Mr. Cowie, Cromleybank, ...	27
Harbinger, red and white, calved 8th Jan., 1859, by Cherry Duke Second—Mr. Milne, Haddo,..	25
Damian, red, calved 24th Jan., 1859, by Speculator—Mr. Reid, Danestane, Grandholm, Aberdeen, ...	1
Armstrong, roan, calved 28th Jan., 1859, by Cherry Duke Second—Mr. Garland, Ardlethen, ...	27
Rifleman, red, calved 28th Jan., 1859, by Speculator—Mr. Grant Duff, of Eden, ...	24
Forest Monarch, roan, calved 3rd Feb., 1859, by Speculator—Mr. Dehucar, Australia,..	81
Aristides, red, calved 11th Feb., 1859, by Cherry Duke Second—Mr. Moir, Knockhall, ...	Gs. 23
Rothschild, red roan, calved 27th Feb., 1859, by Speculator—Mr. Garland, Ardlethen, ...	48
Trumpeter, roan, calved 14th March, 1859, by Speculator—Mr. Milne, Haddo, ...	23
Earl of Rosse, red, calved 22nd March, 1859, by Cherry Duke Second—Mr. Campbell, Kinellar, ...	52
Lord Canning, roan, calved 29th March, 1859, by Cherry Duke Second—Mr. Milne, Mains of Waterton, ..	52
Senator, red, calved 31st March, 1859, by Cherry Duke Second—Mr. Ruxton, Dorbshill, ...	30
Baron Hess, red road, calved 27th April, 1859, by Speculator—Capt. Grant, Monymusk	25
Lord of Lorn, roan, calved 18th May, 1859, by Cherry Duke Second—Mr. Marr, Uppermill, ...	46
Florist, red with white, calved 14th May, 1859, by Speculator—Mr. Wilson, Tochineal, ...	20
Roan Knight, roan, calved 12th June, 1859, by Speculator—Mr. Cockburn, Corbeshill, New Deer, ...	19
HEIFERS.	
Red Heifer, calved 11th Jan., 1859, by Speculator—Mr. Wood, Midtown, King Edward, ...	34
Red Heifer, calved 22nd Jan., 1859, by Speculator—Mr. Wood, Midtown, ...	23
Red Heifer, calved 6th Feb., 1859, by Cherry Duke Second—Mr. Moir, Tarty, ...	30
Red and White Heifer, calved 13th Feb., 1859, by Bosquet—Mr. Thomson, Drumbreck, ...	29
Red Heifer, calved 19th Feb., 1859, by Bosquet—Mr. Moir, Knockhall, ...	16
Red Heifer, calved 2nd March, 1859, by Cherry Duke Second—Mr. Chalmers, Oldwhat, ...	23

The average for the bulls is £39 14s. 10d., and for the heifers £27 2s. 6d., which sufficiently indicates the quality of the stock, and the value put on Shethin blood. Mr. Deuchar bought several of the bulls to go to Australia, and it is understood that Mr. Garland's, Ardlethen, are also for Australia.

THE HOP DUTY.

An account of the duty on hops, the growth of the year 1859, distinguishing the districts, and the old from the new duty:—

DISTRICTS.	DUTY.			
Barnstaple	£44	11	0¾	
Cornwall	1	0	9¾	
Canterbury	124,528	14	6¾	
Essex	1,032	0	10½	
Gloucester . . .	23	2	10½	
Grantham . . .	24	6	1¾	
Hants	22,014	16	2¾	
Hereford	35,019	2	6½	
Isle of Wight . . .	15,816	0	8	
Lincoln	137	0	8	
Lynn	20	10	2¼	
Northampton . . .	40	12	0	
Nottingham . . .	72	11	5¼	
Oxford	23	19	3½	
Reading	197	7	3½	
Rochester	253,211	4	2½	
Sheffield	747	6	1¾	
Stourbridge . . .	7,486	0	9¼	
Suffolk	1,268	6	0	
Surrey	571	1	2¼	
Sussex	126,940	13	2½	
Wales (Middle) . . .	71	2	2¾	
Ware	82	13	2½	
Worcester	9,709	3		
	£599,083	6	8	
Old duty, at 1d. 12-20 per lb.	328,070	2	10¾	16-20
New duty, at ¾d. 8-20 per lb.	242,486	12	7	4-20
Additional duty of 5 per cent., per Act of 3 Victoria, cap 17	28,526	11	2	
	£599,083	6	8	

CHARLES S. HAWTHORNE, Assistant-Accountant and Controller-General,

Inland Revenue Office, Nov. 4.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

As a whole, the month of November has turned out much more favourable than the heavy rains of the first week promised. There was then a complete stoppage to field work and wheat-sowing, but the weather gradually improved, and good opportunities were again presented for the resumption of these labours. The wells as well as reservoirs are now better supplied than for two years past, and the country will, therefore, be under no apprehension of drought. The frosts are said again to have caught the root crops where exposed, having been occasionally severe, and the prospect of abundant cattle feed has considerably diminished, so it is well that the yield of hay was good and well secured. Though the wheat trade has been raised into more susceptibility, with an occasional advance, we can report very little gain in the course of the month, though greater confidence obtains as to future prices. England, indeed, now seems the exception among other countries, all of which have kept steadily rising. The impression is still retained by some that the abundant years 1857 and 1858 have left us with a stock of old that will fill up the void of this years' deficiency, aided by moderate foreign imports: whether profitable or not, time will tell its own tale, and as Christmas payments are near at hand, the weekly sales up to then may continue large, but it seems improbable that when that period is turned farmers will be free sellers, at rates literally lower than many foreign markets, and relatively below all. At least, in America price is the great consideration with growers; for the decrease this season at New York on 31st October, as compared with 1858, amounts in flour and wheat to about 1,106,000 qrs. wheat, entirely as the consequence of reduced rates. France, which till lately took the place of the United States in the liberality of her shipments, has now reached about our own rates. Belgium has found a market for moderate imports hence; Naples is still in want; and the markets in Spain are rising at a rate which must urge on the Government again to adopt free imports; while in Portugal the Government are about proposing the admission of all corn free of duty excepting maize. Odessa itself, which for a long period had been quiet, has been forced up, first by the extensive purchases of wheat for Naples, and afterwards by a demand for rye for northern Europe, as well as for maize for the south. Now, as this unusual demand has been made so soon after harvest; as France, Spain, Portugal, and Italy have also fallen short in their respective harvests; as Spain has commenced hostilities with Morocco, and Italy is in a state of high political ferment, an important decline before next harvest seems impossible; while any great European outbreak, or any untoward appearances in the growing crops, must send up markets considerably.

The following quotations show the value of wheat in the different foreign markets: At Paris the quotations for the best quality were 48s. 6d.; at Nantes, 45s.; Bordeaux, 48s.; Louvain wheat in Belgium was worth 52s. to 53s.; Polish Odessa at Amsterdam, 55s.; red marks at Hambro', 47s.; at Rostock, red wheat was worth 48s.; high mixed at Danzig, 48s. to 51s. per qr. The range of Odessa prices was 35s. to 44s.; white wheat at Leghorn was held at about 52s.; Berdianski red at Genoa, 48s. 6d. Santander, the cheapest port in Spain, quoted 58s. as a top price, but at Barcelona prices were 68s. to 72s., and at Seville 64s. to 74s. per qr. New York quotations for the best white were 52s., red to 46s. per qr.

The first Monday in London opened on the back of a fair English and moderate foreign supply. The morning's show from Kent and Essex was moderate, and the condition being somewhat improved, full prices were realized on fine qualities, with an occasional advance on picked parcels, of 1s. per qr.; but inferior sorts were only a rather better sale. The lower sorts of foreign also brought 1s. per qr. more money. The early markets in the country were generally 1s. per qr. dearer, though Hull and Gloucester were only firm, while Bristol Derby, Nottingham, Leicester, Lincoln, Norwich, Newcastle, and the markets held on Saturday, were generally 1s. to 2s. per qr. higher. London also evinced more tone on Friday, with the prospect of a rise next market. Tuesday's market at Liverpool was about 9d. per qr. dearer, and Friday advanced as much more.

The second Monday was characterized by a dense fog, with a very short supply of foreign wheat. The near counties having sent up but few samples this morning, notwithstanding the darkness, was more animated than for some time past, the best English qualities going off freely at 2s. per qr. advance. Holders of foreign also demanded an equal improvement, but the fog was so dense all through the morning, that it was difficult to distinguish white samples from red, and therefore scarcely anything was done. Several important country markets were below the London advance, as Birmingham, Hull, Newark, Market Rasen, and Melton Mowbray; but Bristol, Gloucester, Leeds, Spalding, and several more quoted a rise of 2s., while Lynn and Newcastle were up 2s. to 3s. per qr. Though Liverpool was 4d. per cental dearer Tuesday, the tone of Friday's market was more subdued, with less business passing,

The third Monday had a liberal foreign supply, with a moderate arrival of home-growth. The morning's supply from Kent and Essex, though only moderate, with former prices asked, did not find purchasers; millers, perhaps, under the excitement of the previous week, having bought freely. Some sales were made at about 1s. per qr. reduction at the Kentish stands; but Essex factors being against any concession, held over for a better market. The sales of the overleft parcels were made on Wednesday, at 1s. below the nominal prices of Monday, and the final market was unaltered. The advices from Mark Lane created much disappointment in the country, Birmingham and Wolverhampton being 1s. to 2s. per qr. cheaper, the Yorkshire and Lincolnshire markets noting a decline of 1s. per qr.; but many places were only dull at the previous rates, Liverpool giving way on Tuesday 1d. to 2d. per cental.

The fourth Monday commenced on good foreign and fair English supplies; but the show of samples from Kent and Essex was only moderate. The weather having changed to wet, there was a want of condition in many of the samples, and they only sold slowly at 1s. to 2s. per qr. decline on the nominal rates of the previous Monday.

The four weeks' imports into London have been 37,018 qrs. English wheat, 42,874 qrs. foreign, against 28,517 qrs. English wheat, 49,431 qrs. foreign, in Oct. last season.

The flour trade, so far as town quotations are concerned, has been unaltered throughout the month, 43s. still being the top price, but country sorts have shown some fluctuations in value, there being on the first Monday a decline of 1s. per sack on Norfolks, which was recovered on the second Monday, since which no change of value has ensued. Foreign arrivals have remained extremely small, the French markets having continued rising, though some shipments have appeared from America of medium and inferior quality, the former being held too high for millers, say equal to 38s. per sack. The month's imports into London were, in country sorts, 85,319 sacks, in foreign 309 sacks 4,286 brls.—against 66,945 sacks English, 2,308 sacks 4,402 brls. foreign in October, 1858.

The barley trade, with fair supplies, has been moving upwards, the increased value of malting qualities being 1s. to 2s., and 1s. for other sorts. Very few samples of fine English malting barley have come to the London market, and this has increased the value of Scotch and Saale qualities; while the extensive demand for pig feeding, with only moderate arrivals from the Black Sea, have gradually raised the lower descriptions 1s. to 1s. 6d. per qr. As no foreign imports can make up the deficiency of malting qualities, high rates seem likely to rule to the end of the season; as high as 51s. has been paid for selected samples in the country, and up to 46s. in town for Scotch. The imports into London during the month have been 28,442 qrs. British and 42,440 qrs. foreign—against 13,220 qrs. English and 67,098 qrs. foreign in October, 1858.

The high prices paid for the best barley has kept up the value of fine malt, a very extra parcel having realized 80s. per qr. on the third Monday, but the sale of inferior qualities has been slow.

The supply of oats through the month has been on a very small scale; and though large stocks have remained in granary, the rates to needy consumers have been gradually improving fully to the extent of 1s. on all sorts, and rather more on Russian descriptions. As all the Irish markets have been advancing, as well as those of Scotland, and the winter must shortly reduce Baltic supplies, there seems no probability of a return to the low rates lately paid, a further improvement being far more likely. The entire month's supply has been 99,542 qrs., including 10,153 qrs. English, 5,139 qrs. Scotch, 5,245 qrs. Irish, and 759,005 qrs. foreign—against a total of 264,794 qrs. in October, 1858.

Beans, which for the month previous were neglected and receding in value, through the falling off in foreign arrivals and an increased demand for splitting, have risen 2s. Splitters had allowed their stocks to run too low, in the expectation of better supplies from France and Egypt; but the former country seems likely to send but little, and the latter less than usual, so we may expect firm markets through the winter. The imports into London for the past month have been 5,712 qrs. English and 2,627 qrs. foreign, against 3,614 qrs. English and 12,434 qrs. foreign in Oct. 1858.

In peas there has been very little change, those for hog feed scarcely bringing so much money, more especially maples, through some foreign supplies; but the tendency of boilers has certainly been upwards, and against buyers 1s. to 2s. per qr., but trade has not been active. The imports into London for the month were 5,224 qrs. English and 1,457 qrs. foreign, against 2,114 qrs. English and 10,029 qrs. foreign in Oct. 1858.

The linseed market, with good arrivals and a fair export trade, has been steadily advancing, a rise of fully 2s. per qr. being reported in the month, which principally took place at the commencement. Linseed cake has followed the course of crushing-seed; and foreign advices all noting but a small yield and advancing prices, there seems no prospect of returning to easy terms. Very little as yet has been doing in the seed trade.

The uncertainty yet hanging over the yield of English red cloverseed having kept the trade in abeyance, though unusually low prices have ruled in France lately, there has been more stir in that country as well as in this, and the expectation of commencing the season on low rates seems likely to be disappointed. About 50s. per cwt. free on board at Bordeaux has ruled; and perhaps orders would now fail of execution, though purchases a month ago might have been made at 47s. to 48s. per cwt. for good seed. White, from scarcity, has remained dear, and the limited stocks have induced occasional purchases, notwithstanding the high prices. Trefoil has been steady, as well as canary, the latter remaining low—say about 64s. for good quality. Hempseed has slightly improved. New foreign spring tares, of good quality, have arrived, and might be had at moderate rates—say about 45s. per qr. These seem likely to be dearer. Mustardseed has remained in calm; and all other seeds have found but an ordinary consumption, at about the previous quotations.

COMPARATIVE AVERAGES—1858-59.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1858.		s.	d.
Wheat......	134,005 qrs.	43	1	Wheat......	103,981 qrs.	41	2
Barley......	95,691 ..	35	11	Barley......	98,839 ..	35	1
Oats........	12,349 ..	21	11	Oats...	9,402 ..	22	11
Rye........	222 ..	28	4	Rye........	144 ..	32	4
Beans......	5,507 ..	40	9	Beans......	3,543 ..	42	7
Peas........	2,795 ..	39	6	Peas	1,114 ..	45	11

CURRENCY PER IMPERIAL MEASURE.

Shillingsper Quarter.

WHEAT, Essex and Kent, white new 38 to 48 ....old 40 to 49
,, red new 37 44 ....old 39 46
Norfolk, Linc., and Yorks., red 37 46
BARLEY, malting, new ..— to 38 .... Chevalier, new 38 44
Grinding .... 26 28 .... Distilling..... 28 30
MALT, Essex, Norfolk, and Suffolk .... 49 to 57 fine 60 68
Kingston. Ware, and town made .. 49 57 ,, 60 68
Brown.............................. 48 49 — —
RYE ....new — — 30 31
OATS, English, feed .... 20 25...... Potato...... 25 29
Scotch, feed......... 21 26...... Potato...... 26 29
Irish, feed, white .... 20 24 fine 25 27
Ditto, black......................... 20 23 ,, — 25
BEANS, Mazagan .... 35 41...... Ticks 36 42
Harrow .... 37 46...... Pigeon....... 48 50
PEAS, new, white, boilers 36 40 Maple 38 40..Grey 34 35
FLOUR, per sack of 280lbs., Town, Households 37s., fine 41 43
Country .... 31 32 ...... Households.. 33 36
Norfolk and Suffolk, ex-ship 30 31

FOREIGN GRAIN.

Shillingsper Quarter.

WHEAT, Dantzic, mixed 50 — high do. — 52 extra — 55
Konigsberg........49 51 ,, — — — —
Rostock ....51 — fine 54 old 54 — —
American, white.. 43 49 red .... 42 47 — —
Pomera., Meckbg., & Uckermrk, red 47 49 — —
Silesian, red ....42 47 white 46 50
Danish and Holstein 46 48
Russian, hard 44 46 .. French..40 47 white 44 48
St. Petersburg and Riga 42 47
Rhine and Belgium................................ 44 50
BARLEY, grinding ....24 28 .... Distilling.... 29 32
OATS, Dutch, brew, and Polands 22 27 Feed 19 24
Danish and Swedish, feed ..20 24 Stralsund.... 20 25
Russian 19 22
BEANS, Friesland and Holstein........................ 37 43
Konigsberg ....34 41 Egyptian 35 37
PEAS, feeding ....35 36 fine boilers .. 37 39
INDIAN CORN, white ....31 34 yellow 30 32
FLOUR, per sack ......French 29 36 Spanish..none — —
American, per barrel, sour. 23 27 sweet ... ,, — —

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS:	Wheat. s.	Wheat. d.	Barley. s.	Barley. d.	Oats. s.	Oats. d.	Rye. s.	Rye. d.	Beans s.	Beans d.	Peas. s.	Peas. d.
Oct. 15, 1859	42	6	35	10	21	3	29	7	38	9	39	8
Oct. 22, 1859	42	10	35	5	21	2	29	6	39	2	37	7
Oct. 29, 1859	43	1	35	6	20	11	30	4	38	9	38	2
Nov. 5, 1859	42	9	35	9	22	1	30	2	39	3	38	8
Nov. 12, 1859	42	10	35	11	21	5	29	7	40	3	37	9
Nov. 19, 1859	43	1	35	11	21	11	28	4	40	9	39	6
Aggregate average	42	10	35	9	21	5	29	7	39	6	38	7
Same time last year	42	2	35	5	23	0	31	9	43	4	44	11

PRICES OF SEEDS.

BRITISH SEEDS.

MUSTARDSEED, per bush., new 10s. to 14s., brown 12s. to 16s.
CORIANDER, per cwt.......................... 14s. to 16s.
CANARY, per qr................................ 58s. to 63s.
TREFOIL, new.................................. 24s. to 26s.
TARES, Winter, new, per bushel ....7s. to 7s. 6d.
LINSEED, per qr., sowing —s. to 60s..crushing 54s. to 58s.
LINSEED CAKES, per ton .... £9 10s. to £10 10s.
RAPESEED, per qr. .... 50s. to 54s.
RAPE CAKE, per ton ....£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

CLOVERSEED, red 48s. to 54s...........white 84s. to 94s.
TREFOIL, ... —s. to —s.
HEMPSEED, small, 33s. per qr........... Dutch —s. to 38s.
CORIANDER, per cwt.............................. 16s. to 18s.
CARRAWAY ,, ... 36s. to —s.
LINSEED, per qr., Baltic 52s. to 56s....Bombay 58s. to 50s.
LINSEED CAKE, per ton.................. £9 10s. to £11 0s.
RAPESEED, Dutch .... 54s. to 58s.
RAPE CAKE, per ton ....£5 0s. to £6 0s.

HOP MARKET.

LONDON, MONDAY, Nov. 28.—Our market continues active, and fine samples of Weald of Kents and Sussex meet with a ready sale at rather better prices. The demand for the choicest Mid and East Kents is steady, but for second-class samples the trade rules heavy. Low and inferior sorts are still in very limited request.

Mid and East Kents	84s., 112s., 147s.
Wealds	56s., 66s., 77s.
Sussex......................	52s., 62s., 66s.

POTATO MARKETS.

SOUTHWARK WATERSIDE.

LONDON, MONDAY, Nov. 28.—During the past week the arrivals both coastwise and by rail have been plentiful, and more liberal from France and Belgium, and the former week's prices have been barely maintained. The following are this day's quotations:—

York Regents	80s. to 120s.	per ton.
Lincolnshire ditto	70s. to 90s.	,,
Dunbar ditto	90s. to 110s.	,,
Perth, Forfar, and Fifeshire ditto	60s. to 85s.	,,
Kent and Essex	70s. to 90s.	,,
French whites	70s. to 80s.	,,
Belgian	55s. to 65s.	,,

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, Nov. 28th.—Since Monday last the arrivals of Potatoes, coastwise and by railway, have been rather on the increase, and in fair average condition. The best samples are in request at full prices, but other kinds are a dull inquiry. Last week's imports amounted to 249 tons from Dunkirk, 125 bags from Boulogne, 36 bags from Hamburg, 25 bags from Hamburgh, 10 bags from Harlingen, and 100 tons from Granville.

York Regents............	105s. to 130s.	per ton.
Essex and Kent..........	70s. to 120s.	,,
Scotch..................	70s. to 130s.	,,
Shaws...................	80s. to 90s.	,,
Foreign	60s. to 95s.	,,

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:	s.	s.
Friesland..................	110 to	114	Cheshire..................	66	82
Kiel........................	120	124	Cheddar	76	84
Dorset......................	118	120	Double Glouc.	60	70
Carlow......................	108	116	HAMS:		
Waterford...................	103	116	York	88	98
Cork........................	108	116	Westmoreland..............	88	98
Limerick....................	100	106	Irish, new	80	96
Sligo.......................	104	116	BACON: Wiltshire, dried	60	64
FRESH, per dozen 12s. 0d. to 16s. 0d.			Irish, green	56	60

WOOL MARKETS.

ENGLISH WOOL MARKET.

Per pack of 240lbs.

	£			£	
Fleeces—Southdown Hogs..............	£18	10	to	£19	10
Do. Half-bred Hogs	18	10		19	0
Do. Kent	17	10		18	0
Do. Southdown Ewes and Wethers	17	0		17	10
Do. Leicester do...................	16	0		17	0
Sorts—Clothing, picklock	18	10		19	0
Do. Prime and picklock	18	0		19	0
Do. Choice	17	0		18	0
Do. Super...........................	15	0		16	0
Do. Combing—Wethermatching ...	20	0		21	0
Do. icklock.........................	17	0		18	0
Do. Common..........................	16	0		16	10
Do. Hog matching....................	23	0		24	0
Do. Picklock matching...............	17	10		18	10
Do. Super do.	16	0		16	10

FOREIGN AND COLONIAL WOOL MARKET.

Per lb.		s.	d.		s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect..........	3	4	to	4	6
	Prima	2	4		3	0
	Secunda......................	2	0		2	4
	Tertia	1	8		1	10
COLONIAL:—SYDNEY—	Lambs	1	10		2	2½
	Scoured do.	1	2		2	11½
	Unwashed	0	7½		1	4
	Locks and Pieces..............	0	10½		1	10½
	Slipe and Skin	0	11		1	10
PORT PHILIP—	Lambs	1	5		2	4
	Scoured do....................	1	2		2	9½
	Unwashed	0	6		1	7
	Locks and Pieces..............	0	8		1	10½
S. AUSTRALIAN—	Lambs	5	1		1	9½
	Scoured do.	1	3½		2	6
	Unwashed	0	4		1	3½
	Locks and Pieces..............	1	1		1	2
V. D. LAND—	Lambs...................	1	6		2	5
	Scoured do....................	1	7		2	0
	Unwashed	0	9½		1	6
	Locks and Pieces..............	0	8		1	10½
CAPE OF GOOD HOPE—	Fleeces	1	1½		2	2
	Lambs.........................	1	2		2	0½
	Scoured	1	2½		2	1½
	Unwashed......................	0	7½		1	8

END OF VOLUME LI.

Rogerson, Tuxford, and Co., 246, Strand, London.

IMPORTANT TO FLOCKMASTERS.

THOMAS BIGG,

AGRICULTURAL AND VETERINARY CHEMIST,

BY APPOINTMENT, TO H.R.H. THE PRINCE CONSORT, K.G., &c.

LEICESTER HOUSE, GREAT DOVER-STREET, BOROUGH, LONDON,

Begs to call the attention of Farmers and Graziers to his valuable SHEEP-and LAMB DIPPING COMPOSITION, which requires no Boiling, and may be used with Warm or Cold Water, for effectually destroying the Tick Lice, and all other insects injurious to the Flock, preventing the alarming attacks of Fly and Shab, and cleansing and purifying the Skin, thereby greatly improving the Wool, both in quantity and quality, and highly contributing to the general health of the animal.

Prepared only by Thomas Bigg, Chemist, &c., at his Manufactory as above, and sold as follows, although any other quantity may be had, if required :—

4 lb. for	20 sheep, price, jar included	......	£0	2	0
6 lb.	30 ,, ,, ,,	......	0	3	0
8 lb.	40 ,, ,, ,,	......	0	4	0
10 lb.	50 ,, ,, ,,	......	0	5	0
20 lb.	100 ,, ,, (cask and measure		0	10	0
30 lb.	150 ,, ,, included)		0	15	0
40 lb.	200 ,, ,, ,,	......	1	0	0
50 lb.	250 ,, ,, ,,	......	1	3	6
60 lb.	300 ,, ,, ,,	......	1	7	6
80 lb.	400 ,, ,, ,,	......	1	17	6
100 lb.	500 ,, ,, ,,	......	2	5	0

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price **5**s. per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.

'Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 Sheep were all dressed in August last with 84 gallons of the '*Non-Poisonous* Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continues getting worse. In December I informed the 'Agent for the above Specific,' that the flock was not cured, and that it requires their immediate attention. The Agent informed me they should be at once seen to, but did not do so until *five* weeks afterwards, and in the mean time the Scab spread over the whole flock, that I never saw such a disgraceful sight in my life; and when the Dresser was sent over to inspect the Flock, he decided on not dressing them again, as one-third of the Sheep had lost half their wool. I then agreed with an experienced dresser in Norfolk to dress the flock, and when he saw the sheep he declined doing them, as they were so very bad, and the time of lambing so near. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your *Specific* proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use.

"I remain, dear Sir, your obedient servant,
"For JOHN TINGEY, Esq.,
"To Mr. Thomas Bigg." "R. RENNY.

In addition to the foregoing, he has very materially improved, as well as considerably reduced the price of his Dipping Apparatus; and he would venture to suggest that no Flockmasters ought now to be without one.

	Price in London,		
New and Improved Dipping Apparatus, on Wheels	£14	0	0
Ditto ditto with Iron-bar Drainer	5	0	0
Ditto ditto	4	0	0
Ditto, plain, with Wooden Drainer.........	3	0	0

N.B.—Catalogues, containing List of Patrons, Testimonials, &c., to be had of all agents, or sent direct per post free.

TO THE NERVOUS AND DEBILITATED.

MR. CURTIS, author of the Medical Treatise, "MANHOOD," may be consulted as usual, either by letter or personally, at his residence, 15, ALBEMARLE STREET, PICCADILLY, LONDON. The efficacy and harmless nature of the remedies employed by Mr. CURTIS having been demonstrated by the most complete success during a practice, extending over a period of 20 years, nervous sufferers of every class, including those afflicted with want of energy, loss of memory, pains in the back, self-distrust, functional incapacity or debility, have a perfect guarantee that the utmost skill and experience will be made available in the treatment of their cases. At home for consultation daily, from ten till three, and six till eight. Sundays from ten till one.

REVIEWS OF THE WORK.

"CURTIS ON MANHOOD.—This is a truly valuable work, and should be in the hands of young and old." —*Sunday Times*, 23rd March, 1856.

"It is the duty of all men to study the laws of their body, no less than those of their mind. In the pages of this work will be found golden rules for regulating the one and preserving the other."—*Mark Lane Express*, March 31, 1856.

"The author has conferred a great boon by publishing this little work, in which is described the source of those diseases which produce decline in youth, or more frequently premature old age."—*Daily Telegraph*, March 27, 1856.

An enlarged edition of the above work has just been published, and may be had of Piper & Co., 23, Paternoster-row; Mann, 39, Cornhill, London; Guest, Bullring, Birmingham; Heywood, Oldham, Manchester; Campbell, [illegible]le-street, Glasgow; and all Booksellers. Price One Shillıng, or free by post, in a sealed envelope, [illegible] the Author, for 14 stamps.

CHRISTMAS PRESENTS,

AND NEW YEAR'S GIFTS.

The exuberance of the feelings amid scenes of gaiety induces the fair and youthful to shine to advantage under the gaze of many friends, and therefore to devote increased attention to the duties of the Toilet. It is a this festive season that

ROWLAND'S AUXILIARIES OF HEALTH AND BEAUTY

are more than usually essential.

The patronage of Royalty throughout Europe, their general use by Rank and Fashion, and the universally-known efficacy of these articles, give them a celebrity unparalleled, and render them peculiarly

ELEGANT AND SEASONABLE PRESENTS.

ROWLANDS' MACASSAR OIL

IS A DELIGHTFULLY FRAGRANT AND TRANSPARENT PREPARATION FOR THE HAIR, AND AS AN INVIGORATOR AND BEAUTIFIER BEYOND ALL PRECEDENT.

In dressing the Hair nothing can equal its effect, rendering it so admirably soft that it will lie in any direction, imparting a transcendent lustre, and sustaining it in decorative charm during the heated atmosphere of crowded assemblies.—Price 3s. 6d., 7s.; Family bottles (equal to 4 small), 10s. 6d.; and double that size, 21s. per bottle.

ROWLANDS' KALYDOR,

FOR THE SKIN AND COMPLEXION

IS UNEQUALLED FOR ITS RARE AND INESTIMABLE QUALITIES.
THE RADIANT BLOOM IT IMPARTS TO THE CHEEK,
THE SOFTNESS AND DELICACY WHICH IT INDUCES OF THE HANDS AND ARMS,

Its capability of soothing irritation, and removing cutaneous defects, discolorations, and all unsightly appearances, render it

INDISPENSABLE TO EVERY TOILET.

Price 4s. 6d. and 8s. 6d. per bottle.

ROWLANDS' ODONTO,

OR, PEARL DENTIFRICE,

Compounded of the choicest and most recherché ingredients of the ORIENTAL HERBAL, and of inestimable value in

PRESERVING AND BEAUTIFYING THE TEETH,
IMPARTING TO THEM A PEARL-LIKE WHITENESS,
STRENGTHENING THE GUMS,
And in rendering
THE BREATH SWEET AND PURE.
Price 2s. 9d. per box.

Sold by A. ROWLAND & SONS, 20, Hatton Garden, London,
AND BY CHEMISTS AFD PERFUMERS.

*** **BEWARE OF SPURIOUS IMITATIONS!**

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